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NEW PROSPECTUS
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ENLARGEMENT.
Volume I., Number 1—New Series.

The Publishers of the SCIENTIFIC AMERICAN respectfully announce to their readers and the public generally, that, on the first day of July next (1859), their journal will be enlarged and otherwise greatly improved; and at that time will be commenced "Volume I., No. 1, New Series," which will afford a more suitable opportunity for the commencement of new subscriptions than is likely to occur again for many years.

The form of the journal will be somewhat changed from what it now is, so as to render it better adapted for binding and preservation and instead of eight pages in each number as now, there will be sixteen and in a completed yearly volume the number of pages will be doubled to 332, or 416 more than now.

The SCIENTIFIC AMERICAN is published at a price which places it within the reach of all; and as a work of reference for the Workshop, Manufactory, Farm and Household, no other journal exceeds or even equals it in the value and utility of its information. Its practical recipes alone oft-times repay the subscription price ten-fold. Inventors will find it, as heretofore, the mirror of the Patent Office, and the reliable record of every claim issued weekly by the Office, the list being officially reported for its columns.

With the enlargement of the SCIENTIFIC AMERICAN, we shall be enabled to widen the sphere of our operations, omitting none of the features which now characterize it, but adding many new ones, which will render the work more valuable to all classes of the community than it has heretofore, among which is the devoting of space to a Price Current, and a column or two to the Metal and Lumber markets, and such other branches of trade as may be interesting and useful.

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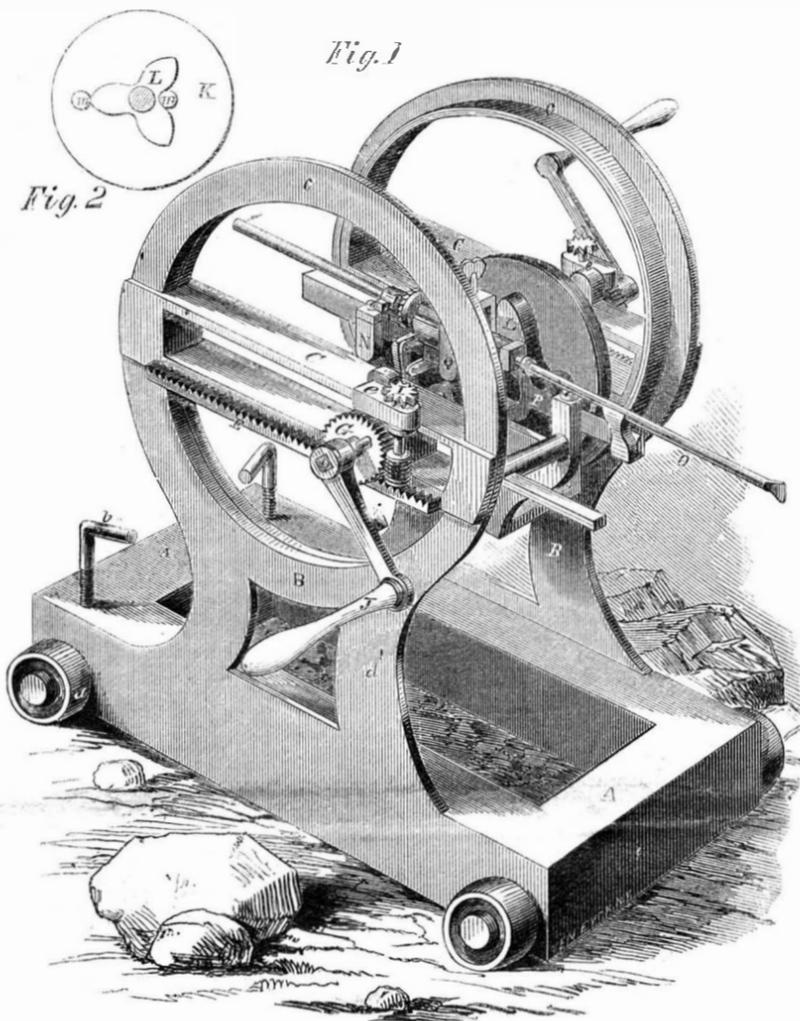
MUNN & CO., Publishers and Patent Agents,
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Beautiful Electrotpe Table Tops.

A most beautiful invention, connected with ornamental tables, has lately been exhibited in London. It consists in securing, with varnish, mother-of-pearl, precious stones, curious shells, &c., on a plate of copper intended for a table top. These are arranged in an artistic manner to represent figures, leaving spaces of clean copper between them and then submitting it to an electrotype bath, where a deposit of copper is made to fill up the spaces between the stones, &c., and thus hold them embedded in the metal. After this the plate is submitted to a silver electroplating bath and the copper covered with silver, thus forming a curious and exquisite table cover ready to be placed on a pedestal.

WE have to thank Capt. A. A. Humphreys of the Topographical Engineers, for his able report of recent explorations and surveys, and the excellent maps which have been constructed under his supervision.

WHITE'S ROCK AND COAL DRILL.



A really good drill is a great desideratum for mining purposes, and has long been wanted; one so arranged that it could be worked by hand or power as the size of the bore or the facilities of the mine or quarry enabled to be done. The subject of our engraving is such a machine, and is the invention of Lyman White, of Davenport, Iowa, the patent being granted this week.

Fig. 1 shows a perspective view of the whole machine and Fig. 2 an isolated view of the working cam. A is a frame which is mounted on small rollers, a, that can be adjusted by screw rods, b. To each side of the frame, A, is an upright supporting piece, B, formed of an annular top piece, c, and two supports, d. Within each piece, c, a bar, C, is placed, and secured in the desired position by screws. C are slotted longitudinally nearly their whole length, and a bearing, e, is fitted so that it can slide in the slot. D is a shaft which rotates in e. On the outer edge of C a rack, E, is placed, in which the teeth of a wheel fit, that is connected with the worm wheel, G, both of which turn loosely on the shaft, D. A screw, H, gears with G, and on the top of H is a small toothed wheel, I, that is moved one tooth every time the crank, J, makes one revolution by the pin, i, passing between the teeth of I. By this means the drill is fed to its work. On the shaft, D, a wheel or disk, K, is placed, and it is provided on its face with a cam, L. On D there is suspended a box which carries a carriage, N O P, on which are placed the rollers, m m, that, passing both sides the cam, L, cause

the carriage to be moved back and forth by the cams. The drill, O, is secured in a frame in this carriage that is provided with a ratchet wheel at its end, so that the drill may be rotated as it is at work. The operation is very simple. By turning the cranks, J, the drill receives a rapid percussive and return motion, giving three blows to one rotation of the crank, and at the same time the drill is fed to its work and itself turned to cut the whole round. It can be advantageously used by farmers to remove rocks from the farm, and is so simple that any mechanic can construct it. A two-inch bore and under can be done by hand, and it is only above that size that animal or steam power will be required. The editor of the *Iowa State Democrat* has seen it in operation, and speaks very highly of its performances.

Any further information can be obtained by addressing the inventor as above.

Flaxen Ringlets.

Poets have often sung in raptures of blue-eyed, laughing flaxen-haired girls, but George Speight, of London, a thoroughly practical man, understands things better than those dreaming rhymsters who make sonnets to their sweethearts' ringlets, for he makes flaxen ringlets for those sweethearts. He has just taken out a patent for making plaits and curls for headresses and other head ornaments and employs Russian or American hemp dyed to the exact shade desired, and glossed up with aromatic grease, and curled to adorn the head of some happy fair one either with flowing auburn or raven locks as may be desired.

When it is taken into consideration that long brown hair for making ladies' artificial curls costs from \$10 to \$12 per pound, Mr. Speight may be considered a sort of benefactor to all those individuals who are deficient in natural cranial ornamentation, although we think his invention will rather spite the girls in Normandy, who cultivate their hair expressly for our wigmakers.

Peddlers in human hair traverse France, and attend the country fairs, to which the girls flock who have long tresses for sale. These are offered for examination, and a bargain struck for each fleece according to its length, color, and texture—the dark auburn being the most prized. When this is done, down sits the devoted fair one on a stool, and a large pair of ruthless scissors soon completes the operation, and the price being paid, the shorn damsel goes on her way rejoicing. Beautiful long tresses which a fashionable lady would not part with for thousands of dollars are parted with by the French rustic maidens without a sigh and for very small sums, little dreaming that in a short time afterwards, they may be attracting a score of admirers in Broadway. Such has been the way of the world heretofore, but Mr. G. Speight intends to have a different order of things hereafter—if he can.

New Gold Discovery.

The Melbourne (Australia) *Argus* states that great excitement has been created at the celebrated Bendigo Diggings by the discovery that a conglomerate metal, very common, but which has been hitherto disregarded, will yield not less than 150 oz. of pure gold to the ton, with a very large per centage of zinc. The analysis is as follows:—Zinc, about 45 per cent; iron, about 20 per cent; sulphur, about 15 per cent; arsenic, about 10 per cent; other extraneous substances, about 9 per cent; gold, about 1 per cent: total, 100—giving a result of 1 oz. of pure gold out of every 100 oz. of the conglomerate. It states that "this discovery has opened up a fresh mine of incalculable wealth." From the nature of the alloy it will not be an easy process to reclaim the gold, and it will not pay the expenses in Australia. If this conglomerate were imported at a small cost to New York, it could be smelted and refined with profit.

MOLDS OF ENGRAVINGS.—Gutta-percha can be dissolved in olive oil by the agency of heat, and it then becomes a plastic mass, which is kneaded with warm water to wash it, and the moisture then pressed out. It is now laid on the face of an engraved plate, which is designed and copied by the electrotype process, and heat is applied to the under surface. The composition is thus melted and fills up every line of the engraving; it is then suffered to cool and when it becomes dry and hard, it is easily removed and forms a mold containing a perfect copy of the engraving. The face of this mold is now dusted with pure plumbago, and placed in an electrotype trough, when a coat of copper is deposited upon it. In a very simple manner multiplied copies of engravings can thus be obtained.

PROSPECTUS.—We hope the friends of the SCIENTIFIC AMERICAN will send without delay for our prospectus, with a view to getting subscribers on our new volume; and from those who have already received them we hope to soon hear a good account.



Issued from the United States Patent Office FOR THE WEEK ENDING JUNE 14 1869.

[Reported officially for the Scientific American.]

* Circulars giving full particulars of the mode of applying for patents, size of model required, and much other information useful to inventors may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

WASHING MACHINE—Pleasant Armstrong, of Camden, Ala. I claim first, The arrangement of the complete stationary rounds of the convex swing frame, on two semi-circular lines of different diameters, so that the rollers on the smallest semi-circle shall stand above and opposite the spaces between the rollers on the largest semi-circle, in combination with the arrangement of the stationary rounds of the concave, substantially as and for the purposes set forth.

MACHINE FOR PRINTING ADDRESSES, &c.—John A. Barrington, of Fredericktown, Ohio: I claim, first, A cylinder constructed with grooved ribs, or their equivalent, for holding forms of type, presenting them at a proper point, to perform the office of printing, and afterwards allowing them to be delivered from the cylinder, substantially as described.

Second, In combination with the cylinder, B, I claim the ribs, k, arranged upon an endless chain in such manner as to receive the forms of type, as described.

Third, Securing the forms i, within the ribs b, in such manner as to present said forms properly for printing, by means of the follower, j, n, catch, j', and spring j'', substantially as described.

Fourth, Adjusting the forms of type for printing and delivering them from the cylinder after printing, by means of a reciprocating bar, operating substantially as described, or its equivalent in effect.

Fifth, The inclined feed-wheel, W, constructed with adjustable spring conveyors, v v', and operating substantially as described.

Sixth, Regulating and adjusting the speed of the endless apron, T, by means of the inclined disk, t, friction wheel, t', set screws, v' v'', and crank screw, V, all constructed, arranged and operating substantially as described for the purpose set forth.

GAGE FOR MEASURING THE PRESSURE OF FLUID—Victor Beaumont, of New York City: I claim, first, So arranging respectively dome-shaped elastic disks of one or more spring chambers in pressure gages, as that the pressure of air or other fluid within said chamber is indicated by the motion of the disk or plate, which presents its convexity to the pressure.

Second, The manner substantially as described of guiding the free end of a spring, consisting of one or more chambers, expanding by pressure from within, in order to prevent it from vibrating in any direction but that of its axis.

Third, In pressure gages with a hollow spring chamber mechanism, I claim partially filling the space inside of chambers with a solid substance, or substances, in the manner and for the purposes set forth.

INSTRUMENT FOR MEASURING THE STRENGTH OF WATCH SPRINGS—J. M. Bottom, of New York City: I claim an arbor, having a measuring spring affixed thereto, together with an index, substantially as described, and an attachment for attaching the hair spring to be measured, combined and arranged in the manner and for the purposes set forth, and constituting a ready means of determining the exact force of said hair springs, as specified.

CHURN—P. S. Devlan, of Reading, Pa.: I claim the employment in a churn, in which the cream is acted upon by a blast of air, G, substantially as and for the purpose described.

ORE SEPARATOR—Wm. O. Bourne, of New York City: I claim, first, A sieve-bed, in which the opening or openings for the passage of the air or water through it are so constructed as to enforce an uniform action of the air or water through the entire surface of the sieve-bed, which may be made of sheet metal, or of any textile material, either separately or in combination, or of their equivalent, as set forth.

Second, The application of a vibrating and shaking motion to a sieve-bed, in combination with a blast of current of air, or water, in the manner and for the purpose described.

Third, The described adjustable blades for agitating the substance on the sieve-bed, and for regulating the discharge of the refuse substances over the front edge of the table, as described.

Fourth, The separation of metals, or other heavy substances, from ores, or other materials, when upon a sieve-bed, by the gravitation of the lighter substances towards and over the front or waste edge when acted upon by a current of air, or water through a sieve-bed, in the manner and for the purpose set forth.

MARINE HAND PROPELLER—E. C. Brackett, of Newton Corner, Mass.: I claim the arrangement and combination of the adjustable oar, B, arms, D, oscillating shaft, E, hinged blades, F, rods, G, arms, K, P, rod, N, and lever, H, as and for the purposes set forth and described.

[This device is more especially intended to propel boats of from ten to twenty tons, and to replace the single enormous oar now in use. A number of propellers or blades are hung to a pivoted arm which is fixed to the end of a vertical post attached to the side of the boat, and they are operated by means of an arm, connecting rod, and lever so as to give to them a swinging or vibrating motion, at the same time the blades are so hinged as to adapt themselves to the impact of the water in an inclined position similar to the act of rowing or sculling.]

VALVE—Wm. Bramwell, of New York City: I claim the sliding nut, k, actuated by the screw, i, in combination with the hinged valve, m, and toggle links, l, l', substantially as specified.

REEPING SAILS—Joseph Francis Brouard, of Havre de Grace, France. Patented in France Feb. 2, 1866: I claim, first, Supporting the rolling yard, F (Fig. 12, sheet No. 3) between its points of suspension, by the hook, N, the said hook being constructed and operated as described for the purpose of staying the rolling yard and holding it in position, when the sail attached to it is acted upon by the wind, as set forth.

Second, The construction of the boom iron, shown in Fig. 3, sheet No. 3, for the purpose of placing the boom in position, to prevent the chafing of the sail, as described.

PROJECTILE FOR KILLING WHALES—Robert Brown, of New London, Conn.: I claim the flukes on the shank of the bomb, the line attached thereto, the groove or indentation in the barrel of the bomb, for the line as stated.

SELF-PRIMING LOCKS—J. S. Butterfield and Simeon Marshall, of Philadelphia, Pa.: We claim, first, The extension, g, on the carrier, in the manner and for the purpose as substantially set forth.

Second, We claim disconnecting each primer from the roll, with the setting of the hammer, in the manner and for the purpose substantially set forth.

Third, We claim the adjustable center projection, h, and thumbscrew, q, q', arranged and operated in the manner and for the purpose as substantially set forth.

METHOD OF ATTACHING THE CAPPING OF FENCE POSTS—R. S. Cadwell, of Andover, Ohio: I claim the projection, or tongue, A, formed on the top of the post, in connection with the mortise, I, in the capping, for attaching the said capping to the post, and securing it by a batten, as described.

MODE OF FASTENING LETTERS TO SIGNBOARDS, &c.—Thos. Champlin and Thos. Motley, of Washington, D. C.: We claim the placing or casing on the back of letters projections with solid cast or wrought shanks therefrom.

We claim holes in said projections to fasten by screws, nails, or rivets, substantially as described.

FLY-TRAP—L. S. Clough, of Brooklyn, N. Y., and S. R. Burrell, of New York City: We claim the combination of the stationary cone, revolving catcher and start and receptacle, when constructed as described and for the purpose specified.

[An illustration and description of this invention will be found on another page.]

SUGAR CANE PRESS—Thos. Cram, of Port Atkinson, Wis.: I claim the combination of the pressure rollers, B C, with the main bearing wheel, A, of a frame, which is so proportioned and supported that it can be rotated around a pivot post, but this I only claim when a fluid receiving vessel, s, a conducting tube, l, an annular channel, j, and a delivery spout, k, are combined with the said frame, substantially in the manner and for the purpose represented and described.

MANUFACTURING PAPER—S. S. Crocker and Geo. E. Marshall, of Lawrence, Mass.: We claim, first, The combination of internally heated drying cylinders, a, with a steam box, or boxes, arranged for the purpose of continuously first thoroughly drying paper, and then superficially moistening it, by the direct application of steam prior to the operation of calendering.

Second, The combination of a steam box, or boxes, arranged as to moisten paper superficially by the steam therein contained, with rolls which calender by pressure as described.

LOOMS—Chas. Crosley, of Ellington, Conn.: I claim first, The combination of the series of vibrating tuft formers, K' K', and the vibrating reed, G, H, arranged and operating substantially as above described.

Second, The combination of the weights, B and 4, the knotted cord and slotted arm, S, for the purpose of controlling the set-off of the tufting yarn beam, as described.

DRAIN TILE MACHINES—Jones Daines, of Birmingham, Mich.: I claim, first, The bar, G, and hooks, D, in combination with the crossbar, E, when used for the purpose of opening the lid, C, automatically, as described.

Second, I claim the bar, B, combined with the frames, M, in the manner mentioned, with the levers, L, for cutting off the tile by the retracting of the plunger.

HORSE BRACKET—T. B. Davis, of Lexington, Mass.: I claim the improved mode of fastening and confining it to the foot, by having the points of attachment bear directly upon the heel, so as to insure the ankle or fetlock, by pulling the heel of the horse, and also the machinery by which the bracket is adjusted to the size of the foot, and held more firmly and securely than by any other mode of attachment now known.

MILK CAN—E. R. Denniston, of Middletown, N. Y.: I claim, as an improved article of manufacture, a milk can, having its cover, C, hinged to a frame, f, and provided with a plate, h, stopper, k, and having the guard hoop, B, attached to the body of the can, b, all as shown and described.

FLOWERS—E. H. Moore, of Slabtown, S. C.: I claim the arrangement of the beam, A, brace, B, clevis, C, foot, D, stock, E, and ring, F, the whole being constructed as described for the purposes specified.

ATTACHMENTS TO LOCOMOTIVE ENGINES FOR REMOVING OBJECTS FROM THE TRACK—C. H. Eisenbrandt, of Baltimore, Md.: I claim the double suspension lifting platform, composed of the parts, c c c 2, d d, e e, f f, g g, h h, j j, k k, L L, m m, the yielding network or flexible fender guard, or its equivalent, i i i, when constructed, combined and arranged substantially in the manner set forth and described.

OPERATING SWITCHES ON RAILROADS—Chas. Foster, of Eldridge's Hill, N. J.: I claim the mode of operating switches by means of movable cams, i, i', or their equivalents, on the car, acting on a cam, A, or its equivalent, connected by means of levers with the switch rail, c, substantially as described.

MACHINES FOR DRESSING MILLSTONES—H. B. Gill, of Ogden, N. Y.: I claim the combination and arrangement of the pivoted segmental arm, O, and slide, N, with the striking lever, G, and cam, M, or its equivalent, substantially in the manner and for the purpose set forth.

MACHINES FOR MAKING HAY—T. I. Goff, of Warren, R. I.: I claim the combination of the gathering rake, D, and revolving rake, E, when arranged for joint operation, substantially as and for the purpose set forth.

[A gathering and a revolving rake fitted in a frame mounted on wheels are used in this invention, by which the grass as it is left by the mowing machine may be expeditiously turned for the purpose of being cured or made into hay. The object of this invention is to expedite the process of making hay, so that the work may be speedily done, and the old injunction of "make your hay while the sun shines" be better fulfilled.]

VENTILATORS—G. D. Greenleaf, of Chateaugay, N. Y.: I claim, in combination with the cylinder, A, bell-shaped casing, G, and plates, B D, the cup, J, and register, f, for the purpose specified.

[By allowing the impure air of a room to escape into the pipe of a stove by which a chamber is heated, a good ventilation is obtained, and one so simple that it should be universally adopted.]

HORSE RAKES—Henry Hersh, of Lancaster, Pa.: I claim the arrangement and combination of the S-shaped teeth, H, lock, I, revolving axle, B, and clearers, M, as described and for the purposes set forth.

OMNIBUS REGISTER—H. C. Howells, of New York City, and J. C. Howells, of Madison, Wis.: We claim, first, The employment of a yielding platform to determine the value of the entry or fare, and in combination with doors, or equivalent devices, to secure the registration of persons standing upon it, previous to their ingress or egress, substantially as specified and set forth.

Second, We also claim the employment and use of the circular or segmental doors, or equivalent devices, having within the area of their action a yielding platform, operating substantially as set forth and specified.

Third, We claim, in combination with the yielding platform, G, an operative lever, N, and vertical rod, M, and puppet, Q, or their equivalents, substantially as set forth and for the purpose specified.

Fourth, We claim the pin, or bolt, s, in combination with the arm, O, attached to the vertical rod, M, or their equivalents, for communicating motion to the registering levers, S and T, by the action of the jointed arm, P, substantially as specified and set forth.

Fifth, We also claim the registering levers, S and T, operated as set forth, or their equivalents, and in combination with the registering ratchet wheels, U and V, and the spring pawls, m m, together with the double dial, X, for registering the whole or half entries or fares, substantially as set forth and specified.

Sixth, We also claim the stationary brushes, and the arrangement and combination of levers and rods, or their equivalents, for operating the doors and steps, substantially as set forth and described.

SOWING MACHINES—Solon P. Hubbell, of Unadilla, N. Y.: I claim the combination of the bar, I, having teeth, W, angular notches, X, and clearers, V, with hopper, D, its pins, Y, and slide blocks, O, the whole being constructed and arranged as and for the purpose set forth.

I also claim, in combination with the hopper, D, pins, Y, slide blocks, O, and regulating plate, E, the reciprocating bar, F, with its clearers, R R', and stirrers, S; the levers being constructed and arranged for operation conjointly in the manner and for the purpose described.

TUNING KEY-BOARD—Richard Humphreys, of Jonesborough, Tenn.: I claim as a new article of manufacture, the described compound tuning reeds, necessary to represent the corresponding keys in the general scale of musical notations, substantially as described.

[The nature of this invention is in combining on a rectangular board, any desired number of octaves of properly tuned reeds, similar to those used in melodeons, to represent a corresponding number of octaves of the natural scale of musical notation (or white keys of a piano-forte), and another set of correctly tuned reeds to represent the semi-tones of the octaves, in such a manner as to enable the musician, by comparing the tones of his instrument with those of the key-board, to detect and correct the least departure from the correct tone.]

WOOD SCREWS—Henry L. Kendall, of Providence, R. I.: I claim a wood screw, having a thread of a ratchet-wood shape in combination with wide spaces between the convolutions thereof, on a stem cylindrical, or nearly so, and on a point of any suitable form, substantially as set forth.

I also claim making the threaded point of a wood screw in such a manner that the thread thereof (except the terminal convolution) shall be of the same or nearly the same depth on its upper and lower sides, so that the screw's firmer hold of the wood, especially on its first entrance, than it would have if the threads on the point were made of gradually less depth toward the apex, substantially as set forth.

I also claim so forming the thread of a wood screw that it shall be of the same depth on the upper and under side, on the point and on the stem, (except the terminal convolution), so that, which is contracted rapidly in depth and width, substantially as set forth.

BREECH-LOADING FIRE-ARM—Daniel Leavitt, of Chichester, Mass.: I claim effecting the locking and unlocking of the upwardly-opening breech, and the starting of the same from its seat to open it, by means of a detached lever having a locking-dog, f', to enter a notch in the breech, and a toe, g, to act against the bottom of the breech, substantially as described.

[This invention consists in the employment, in combination with a breech-loading fire-arm, of what the inventor calls a "combination packing," consisting of a piece of felt fitting snugly into the rear portion of the barrel, and a piece of stout paper, pasteboard, or other hard, inflexible material of a form and size to pass easily through the barrel, the felt being placed next the breech of the fire-arm, and the paper or hard material between the felt and the charge, that by the force of the explosion it may be driven back against the felt and so caused to compress the same against the breech and spread it laterally against the sides of the chamber and force it close against the joint, and so prevent the escape of gases and keep the joint perfectly clean. This "combination packing" is applicable to breech-loading fire-arms of various constructions.]

SEWING MACHINES—James S. McCurdy, of Brooklyn, N. Y.: I claim, first, The combination of a reciprocating needle with a pair of loopers, or their equivalent, the combination as a whole operating in such manner that each successive needle-loop is encircled by a tight coil of the thread of the preceding loop, substantially as described.

Second, The combination and arrangement of two loopers, substantially such as described, with a driver operating substantially in the manner and for the purpose described.

Third, Constructing and operating one of the loopers in such manner that a supplementary movement is imparted to it while the other is at rest, for the purpose of tightening the stitch.

MUSICAL INSTRUMENTS—H. T. Merrill, of Galena, Ill.: I claim the gamut board, B, applied above and behind the keys, in combination with a sliding name-board, B, or its equivalent, substantially as specified.

[The object of this invention is to facilitate the learning of the location of the notes and their indicative letters upon the base and treble staves, and at the same time the association of the location of every note upon the staves with its respective key on the key-board of a piano-forte, melodeon, organ, or other musical instrument having a key-board of similar character. To effect this a vertically sliding name-board, or board occupying the usual position of the name-board of a piano-forte or similarly keyed instrument, extending the whole length of the key-board, a fixed or "staff-board," having represented on it the base and treble staves, and the indicating letters of the notes arranged above their respective keys, are employed, the "staff-board" being so arranged behind the name-board as to be exposed by sliding up and concealed by sliding down the last-mentioned board.]

CULTIVATORS—Azal Smith, of Westfield, Ohio: I claim the adjusting brace-plates, C C, frames, B B, and cutters, D D, when arranged as described, and in combination with the adjustable mold-boards.

LAMPE—Rufus S. Merrill, of Lynn, Mass.: I claim, in coal oil burners of otherwise ordinary construction, the combination with a flat wick tube, of the removable director constructed as described, with inclined side walls and vertical ends, the latter being corrugated or grooved to fit the ends of the wick tube, as a means of securing the director to the wick tube, and for directing or conveying the heated vapors mixed with atmospheric air, to the sides of the flame, substantially in the manner and for the purposes set forth.

HANGING CARRIAGE BODIES—Leman C. Miner, of Hartford, Conn.: I claim first, The application of the double-jointed shackle, H, to the front axle, whereby the vertical position of the spring and axle is sustained, and the fifth wheel and appendages dispensed with.

Second, The back axle braces with double joints, B B, to admit a free and easy vertical motion of the springs and supporting the axle in its upright position, substantially in the manner as described.

VULCANIZING CAOUTCHOUC—Dobois D. Parmelee, of New York City: I claim the preparation and use of the ingredients described, with bromine, whether combined or not with sulphur, substantially as described and for the purposes set forth.

STEAM PRESSURE REGULATOR—A. P. Pitkin, of Hartford, Conn.: I claim the forming a connection with the reduced pressure pipe or chamber, A, and diaphragm spring or piston, B, or their equivalents, for the purpose of opening and closing a passage, C, between the high and reduced pressure pipes or chambers, A and D, as and for the purpose described.

Also the combination of passage, C, piston or valve, E, rod, I, lever, F, diaphragm spring or piston, B, and safety-valve, H, arranged to operate in relation to each other as and for the purpose described.

DEVICES FOR SCOURING THE CLEVIS TO FLOWS—R. B. Pringle, of Coventry, N. Y.: I claim the arrangement of the pin, C, leather or rib, c, spaces, e, e, clevis, B, beam, A, and groove, a, as described, for the purposes set forth.

KEYS, &c., FOR PIANO FORTES—Joseph Hoffacker and Joseph Richards, of New York City: We claim, first, The construction of the key-board, by substituting, instead of the usual keys, knobs connected with the main levers, substantially as described.

Second, The pivoted rod, a, in combination with the main levers, m, substantially as described.

Third, The construction of the damper, O, substantially as set forth.

Fourth, The construction of the trigger, n, and its action on the damper, O, substantially as described.

Fifth, The construction of the hammer, s, and its action in combination with the principal lever, m, substantially as described.

CLIP FOR CARRIAGE THILLS—Daniel J. Riker, of Harlem, N. Y.: I claim extending the plate, c, of the carriage clip, in the form of a spring, to the eye of the shafts, and causing said spring to operate on the aforesaid eye, in the direction of the pull, to keep the parts of the bolt and eye in contact, for the purposes and as described.

SPEEDER AND STRETCHER FLYERS—John N. Sawtell, of Chichester, Mass.: I claim the new article of manufacture described for a flyer for spinning frames, when constructed essentially in the manner and for the purposes set forth.

METHOD OF VENTILATING CORN HOUSES—Noah Seitz, of Millmore, Ohio: I claim the arrangement of the openings, O and O', with the wire grating, in combination with the secondary perforated floor, d, lathing, e, and ventilator, f, substantially as and for the purposes set forth.

SAW-SET—Alex. Shoemaker, of Carey, Ohio, assignor to James G. Hunt, of Reading, Ohio: I claim the adjustable arm, O, with the fingers and adjusting screw in combination with the spring trip-hammer.

I also claim the spring, I, and the trip-hammer, in combination with the adjusting frame, e, and rollers, N, N', and adjusting screws; these several devices, I claim, when arranged substantially as set forth for the purpose described.

CONSTRUCTING SHEET-METAL COFFINS—Isaac C. Shuler, of Amsterdam, N. Y.: I claim, first, The arrangement of strengthening the lower part of a sheet-metal coffin, by folding over and soldering together, consecutively in several thicknesses, the surplus metal of the sides and ends of a sheet-metal tray, c, forming a rim all round the outside circumference of the base, and fastening the walls of the coffin firmly thereto. I claim also the arrangement of fastening to the under-side of this tray, or bottom of the coffin, the frames, b h, for the purpose of stiffening it.

Second, The arrangement of placing on the inside of a sheet-metal coffin a metal tray, a, with scroled edges, which rests on a flange formed by turning in the walls of the coffin all round their lower edges, and fastening this tray firmly thereto and also to the walls, for the purpose of strengthening the structure. I also claim the bars, b, for strengthening this tray.

Third, The arrangement of scroled, or folding outwardly, and soldering, consecutively, each fold of the surplus edges of the walls of a sheet-metal coffin, forming a rim all round the upper edge of the walls, for the purpose of strengthening and securing the same in straight lines for jointing, substantially as described.

Fourth, The arrangement of forming on the inside of the upper edges of the walls of a sheet-metal coffin, a scroled rim on the piece, g, for the purpose of more firmly supporting the air-tight cover, and also for the purpose of securing the cover by screws as well as by solder when desirable.

Fifth, The arrangement of fastening on the outside of a sheet-metal coffin between the stiffening rims of the upper and lower edges of the walls, the studs or pillars, o, at the corners and along the sides and ends in any required number, according to the size of the coffin, for the purpose of stiffening the sheet-metal, in order that the structure may sustain a heavy weight.

Sixth, The arrangement of scroled and soldering together the surplus edges of the air-tight cover of a sheet-metal coffin, and beading the same, which, on being turned under, serves to fit the groove, i, as well as to stiffen the cover. Also the stiffening bars, h, substantially as described.

Seventh, The arrangement of pressing a recess in the sheet-metal all round the windows of a sheet-metal coffin for receiving and supporting the glass. I also claim the arrangement of supporting the glass, by a flange formed by the extension of a second inside sheet of the double cover.

Eighth, The arrangement of fastening the glass in these recesses, by means of metal sashes fastened to the coffin-lid, as described.

Ninth, I claim the flanges formed on the outer edges of the sheet-metal blinds, m, m, for the purpose of closing around the metal sash, and securing the glass from the intrusion of dust and from other annoyances.

Tenth, I am aware that I have claimed the bi-section of a hinged cover for the joint of the lid of a sheet-metal coffin, according to the breaks in the side-walls; I claim the cover, j, as applicable to a coffin with straight side-walls, in two hinged sections, as described.

SEEDING MACHINES—Andrew Simmons, of Nora, Ill.: I claim the arrangement of the boxes, T, in relation to the agitator, C, plates, N and O, and in combination therewith the hollow dr il-tooth, V, the several parts being so constructed as to form a broad-cast seed planter and drill.

MACHINES FOR BINDING GRAIN IN BUNDLES—James D. Osborn, of Constantine, Mich.: I claim a binding knot composed of three loops passed through each other, when said passing of the loops through each other is effected by machinery driven or moved from any of the moving parts of a harvesting machine, and whether accomplished by the means herein stated, or by their substantial equivalents.

THE CONSTRUCTION OF SLED RUNNERS—John M. Spooner, of Springfield, Mass.: I claim making both of the runners and the bearers of a sled or sleigh, or other similar vehicle, of one continuous piece or rod of steel or other metal, substantially as set forth.

SEEDING MACHINES—Enos Stimson, of Plainfield, Vt.: I claim the arrangement and combination of the shaft, F, box, E, shaft, M, arm, O, and box, N, as and for the purpose shown and described.

[This invention consists in a combination and arrangement of a broadcast and drill and hill-distributing device whereby two different kinds of seed may be sowed simultaneously—one broadcast, the other in hills and drills, and either allowed to be used separately when desired.]

BREECH-LOADING FIRE-ARMS—Wm. Mont. Storm, of New York City: I claim such an arrangement of the links, as described, and their connection with the breech-piece and lever, that they shall jam forward and firmly hold the former against the rear of the bore of the barrel after it has ceased its motion transversely to the latter, and, *vice versa*, release the breech-piece (in opening the breech) before its movement commences.

Second, I claim the perforated breech-piece, in the manner and for the purpose described.

Third, I claim arranging the horn or head of the hammer, in the manner and for the purpose described.

THE RUNNING GEAR OF SLEDS—R. Sutton, of East Avon, N. Y.: I claim the arrangement and combination of the sliding collar, G, rods, o, reach, E, sliding bolster, F, pendants, i, links, j, and runners, B, as shown and described.

[Those sleighs which have two sets of runners are improved by this invention, which consists in a peculiar manner of connecting the front and back runners, and also in a peculiar way of connecting them to their bolsters, whereby the runners are allowed to conform to the inequalities of the surface of the ground over which they pass. The sleigh allows them to turn readily, and prevents them being injured by ordinary fair usage.]

STOP COOK—Isaac C. Tate, of New London, Conn.: I claim the application of the spring, A, in the manner substantially as set forth and described, and for the purpose described.

WHIFFLETREE HOOKS—Lewis C. Terry, of Chenango, N. Y.: I claim a hook pivoted or hinged to its supporting eye, which is cut away or flattened on its back, in the manner described, so that the point of the said hook, being in contact, or nearly so, with its said holding eye, will securely confine a link, a ring, a staple, a trace, or similar object, in all positions, excepting when turned back upon the said flattened or eccentric part of the eye, substantially as set forth in my description.

I also claim the right, in addition to the above, to so construct the hook and eye that the hook shall have but one motion, *viz.*, a horizontal motion directly around the circle formed by the said eye, so that the said hook shall not drop or work from side to side; and the exclusive right to use the same in either or both the forms above mentioned and described, for all purposes for which they may or can be used, when constructed substantially as set forth.

CULTIVATORS—Joseph Thirlwell, of Galesburg, Ill.: I claim the arrangement of the frame, A, A, the iron bows, B, B, the hinge bow, C, the tongue braces, D, D, and lifting chain, F, when constructed and used in combination for the purposes set forth.

SEEDING MACHINES—Franklin Veal, of Hallettsville, Tex.: I claim, first, The arrangement of the windlass, K, the hand lever, H, and the lever, N, in combination with the smoothing roller, L, the hopper, F, and the harrow, M, and in such relation to the driver's seat, I, that they can be operated from the same, substantially as and for the purpose described.

Second, The combination of the fan cylinder, f, f', with the hopper, substantially as and for the purpose described.

[The hopper box in this invention is arranged with a harrow and a smoothing roller in such a way that all of them, or each for itself, can be operated from the driver's seat, the hopper box being hinged and provided with a lever, whereby the box can be brought in such a position that the flap board or valve is not opened by the cam or that the same is opened for the purpose of discharging seed, and the harrow is suspended from a rope or chain in such a manner that the same can be lifted clear from the ground by means of a hand lever that can be reached from the driver's seat, and the smoothing roller is attached in such a way that it can be raised from or lowered to the ground by means of a windlass that is operated by a handle from the driver's seat.]

RAILROAD CAR COUPLINGS—David Warren, of Gettysburg, Pa.: I claim the arrangement of the adjustable plate, a, as constructed with the pin, b, arm, A, rock-shaft, R, and guards, B, when the same are operated and used, substantially in the manner and for the purpose set forth.

ROCK DRILLS—Lyman White, of Davenport, Iowa: I claim, first, Placing the bearings, e, of the shaft, D, to which the box, M, and drill carriage, N, are attached in bar, C, C, which are fitted in annular parts, c, of the supports, B, and arranged substantially as shown, so as to admit of the facile adjustment of the drill, P, to any angle or position required.

Second, The employment or use of the racks, E, on the bars, C, C, in connection with the wheels, F, G, on the shaft, D, the screws, H, attached to the sliding bearings, e, by the bars, f, the wheels, I, on the upper ends of the screws, H, and the pins, d, on the cranks, J, the whole being arranged substantially as shown, to feed the drill to its work.

[An engraving and description of this invention will be found on the first page.]

CAR COUPLINGS—Gilbert Yates, of West Dresden, N. Y.: I claim the combination of the chains, H, H, clasp, J, J, with the bent and lifting rods, B, B, grooved parts, C, C, and chains, I, arranged in relation to each other, substantially in the manner and for the purposes set forth.

GRAIN-FULLING MACHINE—Wm. Zimmerman, of Quincy, Ill.: I claim the conduits arranged to receive the grain scoured or operated upon by the first or each revolving scourer, when operated on a horizontal shaft, and conduct it to the center or central part of the second or next revolving scourer, and so on in succession through the whole series of scourers, until it passes out of the machine.

GRAIN BINS—Daniel D. Badger and W. S. Sampson, (assignor to Daniel D. Badger), of New York City: We claim the arrangement and combination of the metallic bins, A, in the manner and for the purposes substantially as shown and described.

[The buildings in which grain is usually stored are divided into a number of chambers called bins, the grain being carried by elevators to the top and drawn from the bottom. The partitions which constitute the chambers have hitherto been constructed of wood, which has been liable to harbor insects and was not at all fire-proof. This invention consists in making the bins circular and of iron, which will be perfectly fire-proof. Damp grain can be dried in them and they will

not be affected by any atmospheric changes. The spaces between the cylinders can either be used as small bins or as flues for ventilation or heating as desired. A mammoth grain warehouse, constructed on this principle, is being erected in Brooklyn, N. Y.]

MACHINES FOR SHAPING THE BACKS OF BOOKS—John E. Coffin, (assignor to A. G. Gerrieh), of Portland, Me.: I claim, first, The arrangement of the sliding-holding jaws and the reciprocating roller carriage, substantially as described.

Second, Combining the toggle mechanism which operates the clamping jaws and the screw which operates the roller carriage with a cam and pulley, or its equivalent, on the same shaft, in such manner as to make a machine for shaping the backs of books, which is perfectly continuous and automatic in its operation, and to and from which the books only require to be introduced, and removed by the attendant at the proper stage in its operation, substantially as described.

[This invention consists in a novel arrangement of a pair of clamping jaws and a roller carriage for the purpose of holding the book and shaping its back. It also consists in certain mechanism for operating the clamping jaws, whereby they may be adjusted for books of various thicknesses and yet always present them properly to the action of the shaping rollers. And it further consists in so combining the mechanism which operates the jaws and that which operates the roller carriage as to make a machine for shaping the backs of books that is perfectly automatic in its operations.]

MACHINE FOR CUTTING INDIA-RUBBER INTO THREADS—Joseph W. Cox, of Malden, Mass., assignor to Horace H. Day, of New York City: I claim, first, In combination with the concave rotary cutter, substantially as described, the employment of a tube placed in the concavity thereof, substantially as described, for the discharge of a jet of water against the cutting edge, as described.

Second, I also claim the carriage, with its divided clamps and follower, substantially as described, in combination with a rotary cutter, substantially as described, or any equivalent cutter, for the purpose set forth.

Third, And finally, I claim, in combination with the carriage clamp and follower, the mechanism, or any equivalent thereof, for operating the follower, substantially as described.

MACHINE FOR BORING BLIND STILES—Danl. Dunham, (assignor to D. D. Sweet, James Bromily and E. W. French), of Pawtucket, R. I.: I claim, first, The rack, J, or its equivalent, arranged in combination with the sliding carriage, F, and with the dog, o, as described.

Second, The lever, M, arranged with the nose, p, in such relation to the treadle, D, that by its action the dog, o, is operated, as specified.

[A rack, consisting of a series of converging slats, is arranged in such relation to the sliding carriage on which the blind stiles, or other similar articles, are fastened for the purpose of laying out the spaces for holes or mortices, that the length of these spaces can be regulated by moving the rack in or out and that the carriage can be adjusted by a gage to different spaces and the sliding carriage is operated automatically.]

TRIP-HAMMERS—Bennet Hotchkiss, (assignor to himself and F. S. Collins), of New Haven, Conn.: I claim my improved means of operating the hammer, that is, by an air spring cylinder, substantially as described, or its equivalent, applied to the piston and combined with mechanism by which a rapid reciprocating rectilinear motion may be imparted to such cylinder, essentially in manner and so as to operate the piston and hammer as specified.

I also claim, in combination with the piston trip-hammer, the air spring cylinder and the mechanism for imparting to the latter reciprocating rectilinear motions, as described, mechanism, substantially as specified, for varying the altitude of the path of movement of the cylinder under circumstances as explained, such mechanism as above described, consisting of an eccentric bearing shaft, H, applied in boxes, I, I, and to the crank-shaft, G, of the cylinder, B, substantially as specified.

COMPOSITION FOR CEMENTING IRON—Job Johnson, of East Brooklyn, N. Y., assignor to Chas. D. Archibald, of London, England: I claim the combination and use of lime, bone dust and charcoal, in the manner and for the purposes substantially described.

SPINNING TOPS—Francis Milward, (assignor to H. Homan, W. L. Thomas and D. D. Hardy), of Cincinnati, Ohio: I claim a combined gyroscope and spinning top, constructed and operating substantially in the manner set forth.

SEEDING MACHINES—Daniel Nichols, (assignor to Chas. Rumley and Edward Rumley), of Onarga, Ill.: I claim the combination and arrangement of hinged bars, E, H, slotted arc, I, driving wheel, J, and auxiliary seed-hopper, F, when the same are arranged and operating in the manner and for the purposes specified.

[A plow and seed-planter are so combined in this invention that the seed-planter can be made adjustable according to the depth to which the seed is to be planted, at the same time adapting itself to the irregularities of the surface of the ground and the motions of the plow in turning over the sod.]

ROLLING METAL FOR JEWELRY—John S. Palmer, (assignor to himself and Chas. S. Capron), of Providence, R. I.: I claim the employment of a tapering die, A, in combination with the pressing rollers, substantially as and for the purpose specified.

[The object of this invention is to combine the stamping and the rolling in one operation, and the invention consists in placing the stock from which a certain article of jewelry is to be manufactured on a die, the face of which is provided with a groove corresponding in shape to the form to be given to the article of jewelry, and in passing the die together with the stock through rollers so that the stock, by the action of the rollers, is pressed into the groove and raised and stretched out according to the inequalities of the bottom of the groove, so that plates for rings and similar articles which are flat on one side but not of uniform thickness throughout, may be rolled out by passing the requisite stocks on suitable dies through a pair of pressing rollers.]

ATTACHMENT FOR ALARM CLOCKS—E. T. Quimby, assignor to himself and Newton Brooks, of New Ipswich, N. H.: I claim, first, The wheel, A, or its equivalent, having a series of projections, a, which, or some of which, can be covered up or removed, and operating in combination with the hammer, B, substantially as and for the purpose described.

Second, The arrangement of the slides, F, to operate in combination with the wheel, A, and with the hammer, B, substantially in the manner and for the purpose specified.

[This is a very simple and excellent alarm clock.]

CORN HARVESTERS—Geo. W. Richardson and James W. White, of Grayville, Ill., assignors to themselves and Geo. M. Weed, of White County, Ill.: We claim the combination of the gathering wheels, L, L, terete rollers, H, H, stripping plates, M, and guide plates, N, as set forth.

And we also claim the combination of the fender or guide plates, N, meeting the points of the rollers, H, with the terete rollers and stripping plates, as set forth.

WATER-WHEEL—Robt. Ross, (assignor to himself and Geo. J. Stannard), of St. Albans, Vt.: I claim the plate or gate, F, placed within the water passages, a, of the wheel provided with the vertical projections, f, at the issues, e, and attached to the rod, E, within the shaft, C, of the wheel, substantially as and for the purpose set forth.

[This invention relates to an improvement in that class of horizontal water-wheels in which the water passes through curved passages in the wheel, and which are generally known as re-action wheels. The invention consists in having a gate fitted in the water passages of the wheel, arranged so that the dimensions of the passages may be varied by an ordinary regulator or governor and the speed of the wheel be rendered uniform.]

RAILROAD CARS—Henry Webb, (assignor to S. L. Wilder), of Cincinnati, Ohio: I claim the angular rail herein above described, when constructed so as to be convertible and present a new surface after the first surface has been worn out, in the manner and for the purposes specified.

MEANS FOR ACTUATING MOVABLE PARTS OF FIRE-ARMS—Thos. Bailey, of New Orleans, La. Patented in England Dec. 3, 1853; I claim combining a toothed wheel or pinion on a traveling center and working between guides, with a pair of racks, one of which is stationary and the other movable, having connected to it the part of the fire-arm to be moved, the toothed wheel changing its position or traveling in the same place with the guides, substantially as set forth.

RE-ISSUES.
COTTON GINS—David G. Olmstead, of Vicksburg, Miss., assignee of R. A. L. McCurdy, of Sabine Parish, La.: Patented June 26, 1855; Re-issued July 15, 1856; Again re-issued June 14, 1859; I claim the revolving screen, cylinder or shaft situated in the hopper or roll-box, so that the roll moves around it, when constructed and arranged substantially in the manner described, whether as a single or double device, so as to perform any or all of the functions, as specified.

I also claim discharging the hulls and trash from the roll-box through the sides of the cotton gin, as set forth.

FASTENING CENTER BITS—Able W. Streeler, of Shilburn Falls, Mass. Patented January 23, 1855; Re-issued June 14, 1859; I claim fastening a bit in its stock by means of a projection on one and a suitable recess for it on the other, when combined with mechanical pressure or friction that will hold the projection and recess together, substantially as described.

ADDITIONAL IMPROVEMENT.
THE CONSTRUCTION OF CHAIRS, SOFAS, &c.—Charles Robinson, of Cambridgeport, Mass. Patented March 9, 1858; I claim, additional to the original improvement, the spring plate, D, arranged and operating in combination with the supporting blocks, B, B, substantially as specified.

DESIGNS.

STOVE PLATES—S. W. Gibbs, of Albany, N. Y., assignor to Abbott & Lawrence, of Philadelphia, Pa.

STOVE PLATES—S. W. Gibbs, of Albany, N. Y., assignor to Abbott & Lawrence, of Philadelphia, Pa.

TOPS AND BASES OF SHEET-IRON STOVES—S. W. Gibbs, (assignor to Rathbone & Co.) of Albany, N. Y.

ARMS OF SEWING MACHINES—James S. McCurdy, of Brooklyn, N. Y., assignor to John M. Myers, of New York City.

INVENTIONS EXAMINED at the Patent Office, and advice given as to the patentability of inventions, before the expense of an application is incurred. This service is carefully performed by Editors of this Journal, through their Branch Office at Washington, for the small fee of \$5. A sketch and description of the invention only are wanted to enable them to make the examination. Address **MUNN & COMPANY**, No. 37 Park-row, New York.

A Fragrant Breath.

There are various ways of scenting the breath the simplest is by chewing orris root, or any other fragrant substance. Tooth-powders, lozenges, and tincture dentifrices, however, are preferable in many respects, as they can be easily used, and yet leave the mouth free for "chatting." The following is a good domestic recipe for a highly scented tincture to perfume the breath. Take either white wine, such as sherry, or any alcoholic spirit, a quarter of a pint; broken cloves and grated nutmeg, of each one drachm (one eighth of an ounce); cinnamon a quarter of an ounce; caraway seeds, bruised, a quarter of an ounce; place all these dry substances into the wine, or spirit, in a half-pint bottle, and let them stand together for several days, agitating them every night and morning to accelerate tincturation, for at least a week. Then strain off the tincture through linen to get it bright. Then add about ten drops of otto of lavender, and if you can afford it, five to ten drops of otto of rose also. Although the recipe is complete without it, yet this latter substance greatly improves the formula. A few drops of this tincture put on to a lump of sugar and masticated will scent the breath. It may also be used with advantage on the tooth-brush, in lieu of tooth-powder, or, mixed with water, it can be used as a gargle. Either way will secure "a breath of flowers." S. PRESSE.

Treating Scalds and Burns.

Dr. South, a London physician, in a recent work on domestic practice, gives the following for the treatment of scalds and burns—misfortunes to which children are too often subject: "The object in treating scalds and burns is to keep up, for a time, the great heat or high temperature to which the injured part has been

raised by the scalding or burning, and to lower this by degrees to the natural heat of the body. . . . If the blistered skin be unbroken, the burns may be covered with dry or wet applications, whichever may be handiest or most preferred; but if the skin be broken, wet applications, if they can be got at once, are best, otherwise dry ones must be used; as it is of the utmost importance to protect the exposed sensitive true skin that lies beneath the scarf-skin, of which the blister consists, from the air, which renders it excessively painful. The best and readiest dry materials are flour, or cotton, or cotton-wadding; the wet are spirits of turpentine, spirits of wine or good brandy, lime-water and oil, lime-water and milk, milk alone; or bread and milk poultice; and all these wet applications must be made of sufficient warmth to feel comfortable to the finger, but not too hot."

An American Engineer in the Austrian Service.

It is well known that Austria has of late years been strengthening her fortifications in her Italian possessions. One of the most important has been constructed under the superintendence of an American, H. E. Towle, who graduated at the Lawrence Scientific School, connected with Harvard University. Some three years ago he went to Austria, for the purpose of erecting extensive fortifications at Pola on the Adriatic, about ninety miles south of Trieste. The works were nearly completed at the last accounts, and he hoped soon to be able to return to his country, though he expressed some fears that the French would blockade Pola, and thus his return be prevented.—*New York Express.*

Some Things to be Read.

It is hoped that, out of respect to the publishers, every reader of the SCIENTIFIC AMERICAN will, before he lays down this number, carefully read the following brief notices:

BACK NUMBERS are always supplied to our subscribers free of charge, when we have them; but as we are out of many numbers, when parties order and do not receive the missing numbers called for, they may conclude that we cannot supply them. It cannot, of course, be expected that we will write to all those who order, informing them of our inability to furnish the numbers desired.

BOUND VOLUMES (XIV.), complete, will be ready in a few days; price, \$2 75.

BINDING—Subscribers wishing to have their loose numbers bound can send them to our office for that purpose; charge for binding, 75 cents.

AN ILLUSTRATED TITLE-PAGE, printed on a separate sheet, has been provided to accompany this number. We have issued enough to supply all, and we hope that those of our readers who receive their paper from the news agents will be particular to ask for the title-page. It is useful for all those who may wish to bind their volumes.

TO INVENTORS & PATENTEES—A pamphlet of advice, "How to secure Letters Patent for New Inventions," prepared by MUNN & Co., is furnished without charge. It is useful to all who contemplate making applications for Letters Patent.

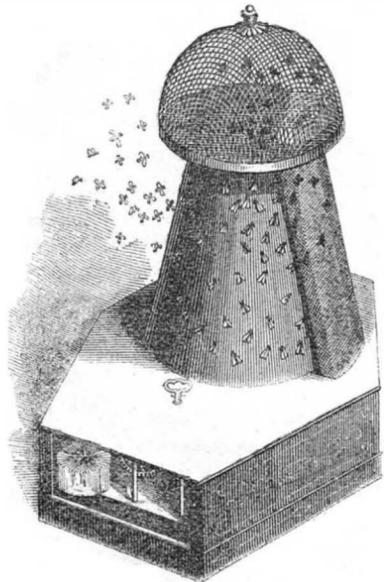
THE CONTENTS OF OUR NEXT NUMBER—the first of the new series—we are confident will not disappoint the expectations of our readers. It will contain several interesting illustrations, and a choice variety of reading matter.

DESTROYING VINE INSECTS—At this period of the year, grape vines in cities and large villages are infested with worms, which feed voraciously on the leaves and do considerable injury. The most convenient way to destroy them is by the use of tobacco juice and sulphur. A pound of tobacco steeped for an hour in ten gallons of water, in which two ounces of sulphur have been stirred, makes a solution of sufficient strength, to be sprinkled with a watering-pot over the entire vine. Two or three sprinklings may be required before the pests are all destroyed.

New Inventions.

Clough & Burrell's Fly Trap.

We always thought that a lighthouse was intended either to warn the mariner of danger or show some friendly channel; but these inventors call their trap a lighthouse trap, and instead of warning flies of their danger, it, with spider-like guile, allures them to their death.



Our illustration shows one of these traps. The clockwork is in the base, from which rises the central column, which is covered with sand and on which the bait (molasses and sugar) is to be spread with a sponge. A rotating spindle passes through the center of this and carries a platform on the top, from one side of which the catcher projects downwards, close to, but not in contact with the sanded cone. On the top of this platform a cage, containing water in its base, is placed, into which the flies are attracted by the light, when started from their enjoyment of the sweets of life by the catcher. When the spring is wound up and the trap baited, the catcher and cage commence revolving around the sanded cone, and the flies are caught, made prisoners, and finally find a watery grave.

The inventors are I. S. Clough and Saml. R. Burrell, of New York, and the patent was issued this week. Any information or traps may be obtained from I. S. Clough, No. 231 Pearl street, New York.

New Farm Gate.

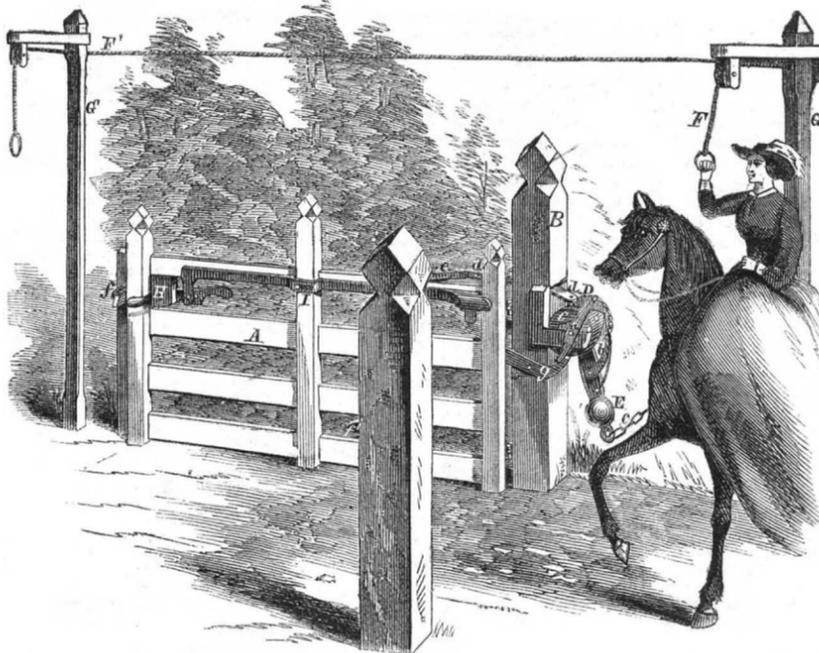
The extreme simplicity of this gate will recommend it to all who wish to have the carriage way to their house, or the entrance to a field or drive, closed with a gate that can be opened by a person on horseback or in a conveyance without dismounting.

The gate, A, is swung as usual from a post, B, to which there is attached a framing that carries a grooved drum, C, and a double lever, a. On the end of the drum is a ratchet-wheel, D, in the teeth of which a pawl, b, is kept by a spring, the ratchet being connected to a weighted lever, E, the tendency of which is to pull the pawl over the teeth without moving, C; but when the weighted lever is elevated by either cord, F or F', that depend from the posts, G G', and are connected by a chain, c, to E, then the ratchet or grooved drum are rotated a quarter of a revolution, or the distance of one groove. In the grooves of C a pin works which is rigidly connected to a lever, d, that has its fulcrum inside B, and that is connected by another lever, e, and a sliding joint to the gate, the fulcrum of e being on the end of a link that is hinged to B. The latch, H, is kept in the catches, f and f', according as open or shut, by a small spring, and the inside end of the latch is connected to the double lever, I, that is operated by one arm of a striking it and so elevating the latch when in one position, and by the other end of

a striking and depressing the double bent lever, g, that operates a pin on the other side of I, when the gate is in the position shown. As the grooves in C run in opposite directions, it follows that, on pulling the cord on one side the gate to open it, when the other cord

is pulled it must close the gate, and vice versa. This gate is very durable; there is no sunk mechanism to get out of order or become clogged with dirt or frozen up, and by removing the pin which connects the lever, e, to the gate, a common farm gate is made.

BOGGS' FARM GATE.

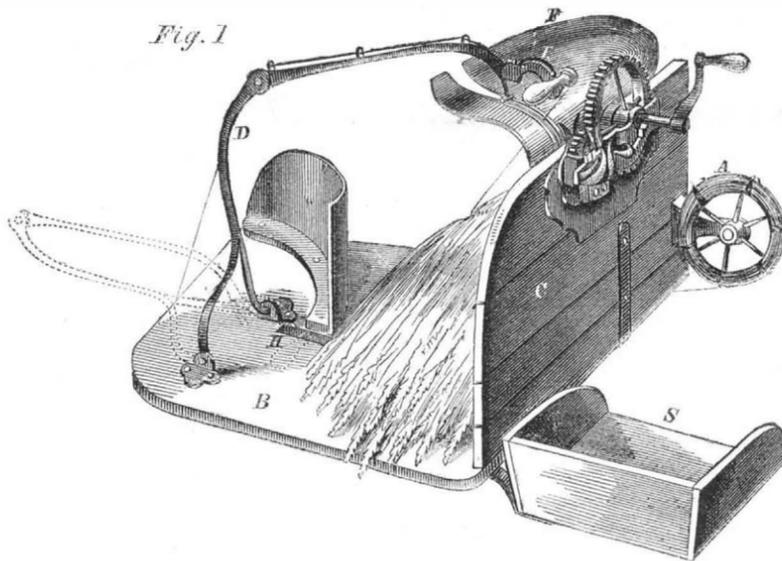


There is nothing strange in its appearance to frighten cattle or horses. It is very easily constructed, and is cheap.

The inventor is W. T. Boggs, of Cincinnati,

Ohio, and the patent is dated Oct. 19, 1858. He will be happy to furnish any further information concerning the invention upon being addressed as above.

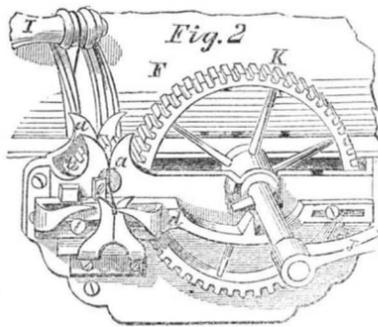
SHERWOOD'S GRAIN BINDER.



This binder, the invention of Allen Sherwood, of Auburn, N. Y., can be attached to the platform of any reaper, and it requires only the attendance of one man.

A reel of wire, A, is attached to the side of the harvester, and along the bottom of the supplemental or binding platform, B, a groove, H, is made, through which the wire is passed to the jointed arm, D, along eyelets in which the wire returns. We may as well describe the operation, by which the machine will be fully appreciated. The operator sits on the seat, S, Fig. 1, and taking the handle, I, of the jointed arm, D, in his left hand, he passes it over the shield, F, on the top of the side, B, and down to the position indicated by dotted lines on the platform. The grain is then raked on the platform, B, and the binder, by elevating the handle, I, passes the wire completely around the sheaf and brings the end to the device seen in Fig. 2, which is placed on the outside of the slide, C, of the device. The wire passes between the two jaws, a, and between two eccentric cog-wheels, b, which are rotated by a wheel, K, operated by means of a handle, J, which the operator keeps in his right hand. These

wheels, b, twist the two ends of the wire to secure it round the sheaf, and a stop, c, on the shaft of K, catching against another one a sliding frame, d, that carries a knife, e, causes the wire to be cut off, and the sheaf

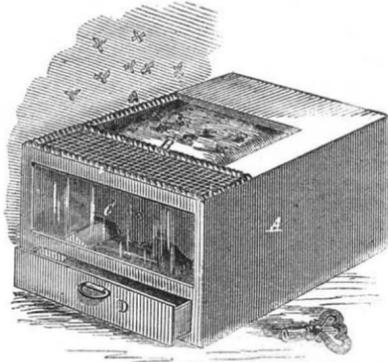


drops away bound and fastened, and the operator is prepared to perform the same operation again, which takes less time than we have taken to describe it. The whole complete weighs only about forty pounds, and it is constructed so as to be sold very cheap. The wire must be flexible iron wire and will not cost much, and can be used for other pur-

poses when the grain is threshed. The sheaves can be easily unwired by a peculiar pull with a gloved hand, although they are not likely to come unfastened by any of the exigencies of transportation from the field to the thresher. Any one can operate it after a little practice, and there is no doubt that it does its work quickly and well.

It is a subject of two patents, Jan. 26 and Sept. 14, 1858, and has been assigned by the inventor to E. P. Senter & Co., of Auburn, N. Y., who will be happy to furnish any further information.

Automatic Fly and Mosquito Trap.



We must confess that it is very cruel to take life and cut short the ephemeral existence of even flies and mosquitoes, but the fact is, they are much too friendly, and have such an uncomfortable way of showing their attachment to our persons, that we willingly seize hold of any means to exterminate these diminutive blood-suckers. Our illustration shows a trap which not only catches but confounds and kills the insects who may happen to be attracted by its seeming innocence.

It consists of a box, A, in one end of which there is a common clock movement, which gives motion to the endless band, B. This band is moistened with a few drops of rum, or molasses and vinegar, and set in motion, when the flies attracted on to it are carried down into the body of the box, where a corrugated or winged drum knocks them off into the bright tin drawer, D, that is half full of water, and the flies, being first stunned by the blow of the roller or drum and further confused by the intense light of the polished tin and the humming noise of the clockwork, quickly lose the power of resistance and drown in the water. When mosquitoes are desired to be caught in the night time to keep the room clear enough to give us rest, a light must be placed opposite the glass front, C, in order that the light may be reflected by the polished tin and so attract the mosquitoes.

It is the invention of S. W. Smith and H. Bigelow, and any further particulars may be obtained from the former by addressing him at 534 Broadway, New York. The patent is dated Feb. 15, 1859.

Inquest on Patents.

A discussion took place a few days ago, in the New York Academy of medicine, on the question whether the Academy should pass an opinion on surgical instruments and apparatus which have been patented. Dr. McNulty contended that it was contrary to the spirit of the Code of Ethics of the National Association for physicians to obtain patents, and consequently that they should not act upon other people's patents. This sentiment met with much opposition, and the general opinion was that surgical appliances should come under a different rule from nostrums; the former being usually invented, at least in part, by mechanics, who could not do without the patent. A resolution by Dr. McNulty, to the effect that the consideration of no patented article should be entertained by the Academy, was lost.

We have received from the author, F. W. Evans, a very interesting account of the theology, sociology, and history of the Shakers, together with a life of Ann Lee.

Scientific American.

NEW YORK, JUNE 25, 1859.

Special Notice.

All subscribers to the SCIENTIFIC AMERICAN who have paid the full subscription price (two dollars) for the complete volume which has heretofore terminated in September, are informed that by remitting \$1 60 more, their subscriptions will be continued for one year on the New Series commencing July 1st.

CLUBS of subscribers who have paid up to September, and wish to renew their subscriptions or form new clubs at that time, can do so at the club rates, deducting 30 cents each from all the present subscribers and complying to our advertised rates on new ones; for instance a club of 10 subscribers who have paid \$15 for one year's subscription up to September, may have their subscriptions continued till the end of Vol. II., New Series, or one year from July 1, 1859, by remitting \$12.

The Past, the Present and the Future.

In accordance with the announcement (made in No. 35) of our intention to enlarge the SCIENTIFIC AMERICAN, and commence a new series on the 1st of July next, the present number terminates Vol. XIV.; and with the next issue we shall appear before our readers in a new form, with new type, and thus introduce "Volume I., Number 1, Enlarged Series"—a sixteen-page paper instead of an eight.

The SCIENTIFIC AMERICAN will next week enter upon its *fifteenth year*; and we hope we shall be able to show to our friends and the public that it still has a vigorous existence, and that it enters upon a new career with the intention of proving itself still more worthy of the confidence and support of a generous and enlightened reading public.

We know from a long experience that our journal has a host of friends everywhere; and the hearty response which has been made towards it, in reference to the proposed scheme of enlargement, assures us that we have not taken this step in vain. We desire here to repeat—what we have often had occasion to do—our warmest thanks for the generous support and confidence which has been given to us during the thirteen and a half years in which we have had control of this journal. Without multiplying words on this point we will proceed at once to give a few details concerning the enlargement and alteration in the form of the SCIENTIFIC AMERICAN. The necessity for the change has long been apparent, not only to ourselves but also to our readers, and the difficulty against which we had to contend was principally one of prime cost; and, as our custom is, we sat down to count the expense and to consider how we could best accomplish our objects. To double the present size of the journal without resorting to the expedient of using a very inferior quality of paper is out of the question, as no sane man would undertake to publish a journal twice the size of this and use equally as good paper for \$2 a year, with our present liberal clubbing rates. We thought of a number of plans whereby we could serve up a more acceptable weekly entertainment to our readers, such as a double sheet monthly or bi-monthly, or a loose supplemental sheet weekly; but a little experience in both these particulars convinced us that neither plan would be satisfactory. We therefore resolved, as the last resource, to change the form of the journal by using a larger sized sheet but folding it into a sixteen-page paper instead of an eight; and thus slightly reducing the size of the pages. The size of the sheet upon which each number of the new volume is to be printed is 28 inches by 40, or just one-half larger than

the sheet now in the hands of the reader; and by a better and more economical arrangement of the space we shall be able to present to our readers almost a double quantity of useful reading matter, and at the same time afford them a more compact, and, we believe, a more convenient volume for binding and preservation. In reference to the amount of reading matter we would further explain, to render this point clear, that, in the present issue, the letter-press covers a total available space of 872 inches, while in the new form the total available space will be 1,536.

It must be apparent to all that this improvement will open to us a wider field for the expression of thought and the results of investigation than we have hitherto enjoyed; and while we do not intend to depart from our legitimate sphere, wherein we have so long labored and wherein there is yet much to be accomplished, we hope at the same time to develop more fully the varied operations connected with invention and the industrial arts and sciences.

By the pen and the aid of the graphic pencil we shall delineate, week by week, the actual progress of invention, discovery and manufactures; and, as heretofore, the SCIENTIFIC AMERICAN will be the only reliable organ of all those ingenious men who, by their continual discoveries in various fields, are ever advancing the world in the knowledge and application of the arts and sciences; and thus the beneficial influence of this journal will be made to extend to all classes of society.

We shall publish the proceedings of scientific associations and bodies so far as their deliberations bear upon the interests of the Inventor, the Mechanic and the Manufacturer; also reports of patent trials, and biographical notices of scientific men and inventors—a feature which we shall endeavor to render useful and attractive. As examples of this kind we refer to our recent notices of Humboldt, Lardner, Olmsted, Watt, Robertson, and Commissioner Bishop.

As heretofore, we shall pay particular attention to the department devoted to giving valuable information to our correspondents, which we shall endeavor to make still more varied and interesting. We shall also vigilantly watch the operations going on in our markets in metal, lumber, and such other departments as may be deemed useful to our readers.

With the foregoing hints and glimpses of our future course, we close our labors on the present volume; and cheered by strong assurances of cordial support from thousands of our subscribers, we shall work on vigorously, trusting that all who already read the SCIENTIFIC AMERICAN will confidently believe that our past exertions form a partial exponent and satisfactory guarantee of our future efforts.

Fawkes' Steam Plow.

A powerful steam plow of thirty horse power having been constructed in Philadelphia for Mr. J. W. Fawkes, of Lancaster, Pa., the inventor issued circulars of invitation for a grand exhibition of its powers, to take place at Oxford Park—about 10 miles from Philadelphia—on the days of the 15th, 16th, and 17th inst. Having taken a deep interest in the subject of steam-plowing, we accepted the invitation of Mr. Fawkes to be present, and expected to be highly gratified with the display. We regret to state that, from the defect of two pinions gearing into the wheel on the main drum, our anticipations were doomed to disappointment. On Wednesday (the 15th), after the plow had traveled round the race course, it was set to work, but had not proceeded above 30 yards when the cogs of the pinions referred to were ripped off, and further operations entirely defeated. We regretted the result as a great number of persons, like ourselves, who had come from a distance to witness the operation, felt mortified, both on their own account and that of Mr. Fawkes. He deserved better success, as his

plow contains some good features and had made a very successful private experiment on the day previous. The plow is 18 feet long by 7 wide, has two horizontal cylinders of 9-inch bore and 15-inch stroke. The boiler is a "vertical tubular," and carries 150 lbs. of steam. The principle feature about it is that the whole frame and machinery are supported on a large rolling drum six feet wide and six feet broad. The power of the engine drives this drum, and it drags a gang of eight plows behind it in an adjustable angular frame. The motion from the crank-shaft to the drum shaft is imparted through cog-gearing, and it was defective teeth in one of these cogs which caused the break-down. It will soon be in operation again, and, with better pinions, it will no doubt give satisfaction, and may yet be the successful competitor for the prize of \$6,500, offered by the Illinois State Agricultural Society.

Humboldt's Will.

The late Baron de Humboldt has bequeathed to his domestic, Seiffert, who lived with him thirty-three years, all his immense library, all his furniture, and all his articles of value, with the exception of a few which he charges him to present to certain persons. His manuscripts, however, are not comprised in the donation, and among them is a geographical work of greater extent than any hitherto published. The domestic is his testamentary executor. The money in hand at the time of the baron's decease was under five hundred thalers. Of this sum he had given four hundred thalers to the servants, with written instructions to apply the money to the expenses of his funeral. As a proof of the little value M. de Humboldt set on personal distinctions, it may be stated that the great number of decorations which he had received from the sovereigns of all countries were found lying pell-mell in a cupboard. His legal heirs, the sons and grandsons of his brother William, had caused the property to be put under seal, not being aware of the donation to Seiffert. This old and faithful servant had some years before been appointed guardian of a royal palace at his master's request, but the king dispensed with his fulfilling the duties of his post during the lifetime of Humboldt.

To Stop Bleeding of the Nose.

Bleeding from the nose is very frequent in young people. Generally this is checked by the person sitting upright, bathing the nose externally with cold water, or vinegar and water, and sniffing it up the nostril. If, however, it continue, a moderate pinch of powdered alum may be put into a couple of tablespoonfuls of water, and thrown up with a squirt; or a plug of cotton dipped in this wash may be passed into the bleeding nostril, for generally it is only one side which does bleed; but care should be taken to fasten a strong thread securely round it, lest it be pushed in or slip so far back into the nostril that it cannot be got out without much difficulty. When there is frequent disposition to bleeding from the nostrils, it is necessary to prevent costiveness, and to take some saline purge continually, so as to keep the bowels rather relaxed. Persons who are subject to severe headaches, followed by bleeding of the nose, should never try to arrest the latter suddenly, but allow it to bleed freely for some time, in order to prevent congestion of the brain.

THE ATLANTIC FERRY.—Twenty-two steamships arrived at this port, Boston, and Quebec, during the month of May, from Europe. Twenty-one steamers in thirty-one days! Almost as many went the other way. It is only twenty-one years since the little Cork steamer, *Sirius*, the first to cross the Atlantic, made her appearance off the Battery. She was eighteen days in making the passage. Now it is accomplished in nine days. The arrival of the *Sirius* produced a sensation throughout the country. Now the arrival of twenty-two steamers in one month scarcely excites a remark. *Tempora mutantur.*

Cast-Iron Stairs.

When a fire takes place in a dwelling, in general the staircase, being of wood, goes early; means of escape are cut off; the inmates can neither get down to the street, nor up to the trap-door, so as to get on the roof of the next house. It has been suggested, as a remedy, to have the stairs made of cast iron; the one end of the steps to be inserted into the wall when the house is being built; the other end of the steps to be made fast in an upright square or round iron pillar, going from the ground to the top of the house. The stairs could be carpeted, and the steps made highly ornamental, with eyes cast for the stair-rods. Of course we only refer to private dwellings, as iron stairs of a very durable and ornamental character have been erected in several of the cast-iron stores in this city.

RIFLE CARTRIDGES.—The conical bullets for rifles sometimes oxydize and become too large for the bore of the barrel, and from this cause some of the British troops have experienced greater trouble in India. To prevent this evil Capt. J. Norton recommended the following method of making cartridges:—"If the shot is coated with thin tough paper pasted on its cylindrical body, and a little forward on its conical front, the lead cannot then oxydize, and the shot preserves its proper size in all climates. The oxyd of lead is a poison, and causes wounds to mortify. This fact ought to be made known generally, and without any delay."

FRIGHTENING RATS.—An old work on catching rats contains the following simple method of banishing these pests from houses. The author says: "I shall here give the reader another maxim I have often followed very successfully. Take a pint of common tar, half an ounce of vitriol, and a good handful of common salt: mix them all well together in any old deep pan. Soak some pieces of paper, and place enough of this into the holes, sufficient to stop them, and then let the bricklayer make good after you; and if you should find any of the holes opened again, it is quite certain you did not put in a sufficient quantity; then put in some more; and if it is done as it ought, they will never approach there again while either taste or smell remains in it."

A REMARKABLE INSECT.—A paper has been sent to the Paris Academy of Sciences by M. Daffour, which describes the anatomy of a small insect not more than four millimeters (about the sixth of an inch) long, which possesses an organism as complete as a large vertebrated animal. It has a nervous system, brain and ganglia and a respiratory system. All the members of this insect are very minute and fragile, and have excited the wonder of the Parisian savans. We do not doubt it; Paris savans are an enthusiastic class of men.

SUBSTITUTE FOR TOBACCO.—"Any person," says the *Colonial (West India) Standard*, "who knows anything of the fragrance of the Pimento when in full blow, may form some idea of it by a pipe charged and lighted with the dried berry simply crushed in coarse bits. It cannot be well smoked in short pipes, but with the long cherry stick of a meerschaum it affords a treat beyond anything known in the use of tobacco. The coolies and native laborers are bringing Pimento into use in the place of tobacco."

A USEFUL HINT.—If a man faints away, instead of yelling out like a savage, or running to him to lift him up, lay him at full length on his back on the floor, loosen the clothing, push the crowd away so as to allow the air to reach him, and let him alone. Dashing water over a person in a simple fainting fit is barbarity. The philosophy of a fainting fit is, the heart fails to send the proper supply of blood to the brain; if the person is erect, that blood has to be thrown up hill; but if lying down, it has to be projected horizontally, which requires less power, as is apparent.

Correspondents

G. R., of Iowa.—Your wheel of 4 1/2 feet diameter and 8 feet tread will run at the rate of 80 revolutions per minute. Its power, with 120 inches sluice area, will be about one-horse, without deducting the usual per cent. for friction, &c. There is certainly a very small quantity of water in your stream.

50 feet high, unless it escapes continually. It is the quantity of pressure multiplied into the velocity of the water which constitutes its power; water without motion exerts no mechanical power. You are pursuing an ignis fatuus.

J. J., of Me.—You cannot obtain a patent for a water-wheel operating in a vacuum chamber at the top of a fall, the water being forced through the bucket by atmospheric pressure. This principle was patented more than twenty years ago by Z. Parker. Transparent protractors, of horn, can be obtained in this city, but not the material for making them, so far as we know.

W. W., of Georgia.—If spent oils and tallow are treated with weak sulphuric acid to remove the dirt, they may be washed with water, and afterwards used for making soap.

Money received at the Scientific American Office on

account of Patent Office business, for the week ending Saturday, June 18, 1859:—

S. & F., of N. Y., \$100; A. H., of Ill., \$30; B. R., of Me., \$67; B. M. D., of Ill., \$25; N. B. of N. Y., \$80; E. B., of Mass., \$30; M. B., of N. Y., \$25; J. B. Q., of N. J., \$25; G. & F., of N. Y., \$30; E. D. of Ark., \$20; G. E. H., of N. Y., \$20; P. S., of N. Y., \$25; I. & S., of R. I., \$30; H. J. H., of Mass., \$30; M. L. T., of Wis., \$30; T. S., of Cal., \$50; R. L. B., of Mich., \$25; D. E., of Ill., \$30; J. L. W., of O., \$55; D. Q., of N. H., \$25; H. C., of Ga., \$30; D. C. B., of N. Y., \$30; E. N., of Mass., \$30; W. H. H., of Cal., \$30; W. J. K., of Ga., \$15; E. C., of Mass., \$30; A. E., of C. I., \$55; P. & C., of Ind., \$25; E. & B., of Ill., \$30; A. H. C., of R. I., \$30; G. W. B., of Miss., \$30; J. & S. N. D., of Mich., \$30; J. B. S., of N. Y., \$60; W. P., of Mass., \$25; L. B., of Ala., \$25; H. B., of N. Y., \$10; H. K. S., of Mass., \$25;

W. D. N., of N. Y., \$32; M. B., of N. H., \$40; C. & M., of Ill., \$30; C. F., of Conn., \$30; W. H. S., of N. Y., \$50; P. McK., of S. C., \$250; C. W. S., of N. Y., \$30; M. K., of Iowa, \$54.

Specifications drawings and models belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, June 18, 1859:—

L. B., of Ala.; A. Le B., of Paris; H. H., of N. Y.; J. K., of Mass.; J. F. S., of N. Y.; J. F. W., of N. Y.; J. B. Q., of N. J.; W. D. N., of N. Y.; H. & H., of Mich.; H. K. S., of Mass.; J. P., of N. Y.; H. H., of Mass., 2 cases; P. & C., of Ind.; M. B., of N. Y.; M. B., of N. H.; D. Q., of N. H.; W. H. H., of Cal.; S. G. R., of Mass.; B. M. D., of Ill.; R. L. B., of Mich.; B. R., of Me.; F. & S., of N. Y.; W. P., of Mass.; P. S., of N. Y.

INDEX

Illustrations.

Addressing Newspapers (Lord), 105
Alarm, Clock and Lamp (Matthewson), 16
Alarm, Boiler (Miller), 44
Alarm, Burglar's (Robbins), 132
Alarm, Steamboat and Water Gage (Miller), 157
Amalgamator, Gold (Fisher), 49
Apple Corer (Alcott), 244
Ash Sifter (Cummings), 256

Balance, Knife and Saw Combined (Smith), 206
Ballot Box (Cumming), 188
Bath, 73
Bath, Shower (Mansfield), 168
Bedstead (Warlick), 160
Bedstead and Bureau (Hoffman), 152
Belt Shipper (Wells), 45
Belt Saw (Cameron), 241
Belting, Experiments with, 216
Bevel and Square (Bronson), 44
Binding Machine (Sherwood), 243
Blind, Window (Ferber), 8
Blind, Window (Kelly & Livingston), 168
Blowpipe (Holley), 32
Boilers, Steam (Montgomery), 129
Boilers, Steam (Pierce & Griffiths), 316
Boilers, Steam, Blow-Off for (Washington), 252
Brush, Marking (Holt), 248
Buoy, Record (Gresham), 88
Burner, Gas (Lozer), 184
Butter Worker (Smith), 24

Callipers (Gould), 324
Can, Preserve (Manley), 24
Can, Preserve (Cotton), 200
Cap for Trace Fastening (Zink), 292
Car Seat (Woodruff), 17
Car Seat (Painter), 76
Car Seat (Hartman), 81
Car Seat (Case), 133
Car Seat (Childs), 340
Car, Sleeping (Sibbet), 232
Car, Sleeping (Jackson), 329
Car Brake and Starter, 119
Carpet Sweeper (Shaler), 52
Center Board for Vessels (Pratt), 300
Chair, Railroad (Crocker), 212
Chair, (Graham), 300
Chair and Bed for Invalids (Favor), 56
Chair and Lounge (Gardner), 308
Choking Strap for Horses (Norvell), 102
Churn, Washing Machine, &c (Swan), 108
Clover Picker (Mills), 320
Coal Washer (Evans), 197
Commissioner of Patents (Bishop), 49
Cooler, Water (Phelps), 200
Crank Motion, 285
Crimper, Hair (Ivins), 304
Cut-Off (Colman), 344
Cyclo-ellipto-Pantograph (Queen), 60

Distilling Apparatus (Kesslen), 281
Drill, Self-feeding (Waskely), 61
Drill, Rock (White), 345
Dyeing Operations, 88

Electric Apparatus for Extracting Teeth, 118
Elevator, Hay (Gadding), 164
Engine, Pulp (Evans), 53
Engine, Steam Fire (Lee & Larned), 89
Evaporator, Sugar (Cook), 141

Felly Bending Machine (Mann), 100
Forge, Portable, 137
Freezers, Ice Cream (Massey), 320
Furnaces, Boiler (Skelly), 8
Furnaces, Wet Fuel (Bantz), 13

Gage, Valve and Pressure (Wain), 81
Gas Apparatus (Hendricks), 97
Gas Burner, Self-closing (Marshall), 40
Gate, Automatic (Rowland), 240
Gate, Farm (Boggs), 343
Governor, Fan (Wittier), 332
Governor for Steam-engines (Porter), 36
Governor for Steam-engines (Broughton), 181
Governor for Steam-engines (Sergeant), 297
Governor Valve (Cope & Hodgson), 337
Grate Bar (Savage), 141
Grain, Measuring and Bagging (Barker), 233

Halter for Horses (Hawkins), 76
Hames (Cogswell), 244
Hanger for Shafting (Johnson), 53
Harrow and Seed-Planter (Root), 340
Hide-shaving Machine (Arnold), 225
Horse Power (Rider), 156
Horse Shoe (Hubbard), 133
Humboldt, Portrait of, 326
Husker, Corn (Meacham), 100
Husker, Corn (Spear), 234
Hydrant (Bryant), 336

Knitting Machine (Aiken), 321, 318

Lantern, Signal (Howard), 53
Lantern (Roessler & Frey), 149
Lath Machine (Hancock), 273
Lath Machine (Pfeiffer), 289
Lathe (McNary), 149
Lathe, Feed Motion for (Rennie), 72
Lever Power (Kenny), 336
Limbs, Artificial (Palmer), 208
Lock (Gould), 113
Lock (Thompson), 216
Loom (Scott), 9
Loom (Cheatham), 318

Match Safe (Merrill), 180
Meter, Dry Gas (Lloyd), 173
Milk Cooler (Mansfield), 292
Mill, Corn and Cob (Scarlett), 84
Mill, Grinding (Beardsley), 116
Mill, Hominy (Fahmy), 121
Mill, Paint (Thomas), 25
Mill, Quartz (Williams), 104
Millstone Balance Iron (Glover), 84
Moloch, Changing (Smead), 236
Mower and Reaper (Jerome), 164

Odometers (Work), 300
Omnoscope (Bart), 56
Our Manufactures, Hoe & Co.'s, 126
Wire Railing Co., 202
Ovens (Jennison), 244
Oyster Opener, 111

Paddle and Screw, 96, 112, 120, 140
Paddle-wheel (Locke), 176
Padlock (Schneider), 180
Paper Bag Machine (Keller), 24
Pedometer (Herring), 232
Peg Float (Pease & Hayman), 288
Pendulum, Compensating (Coffinberry), 240
Plane (Gorham), 284
Planing Machine (Cottrell), 189
Plotting Instrument (Liff), 68
Plow, Seed-Planting (Rose), 108
Plow (Dickson), 124
Plow (Cockley), 144
Plow (Williams), 303
Potato Planter (Hawley), 40
Press, Hop and Hay (Cummings), 4
Press (Miller), 143
Propeller for Canals (Montgomery), 172
Pulley, Expanding, 129
Punch and Awl (Pleghar), 292
Pump (Joyce), 65
Pump (Fagan), 92
Pump (Zeng), 136
Pump (Edney), 296
Pump (De Yampert), 304
Pump (Schaffer), 309
Pump (Lawrence & Safely), 324

Radiator (Chester), 80
Rake, Horse (Squire), 32
Refrigerator and Milk Closet (Nash), 57
Refrigerator (Bartlett), 233
Refrigerator (McAvoy), 290
Regulator, Water (Coleman), 305
Restor Cover (Floyd), 163
Retort, Gas (Symmes), 184
Revolver (Newbury), 83
Rope Machine (Adams), 209
Rope, Serving (McLaughlin), 220

Sash Fastener (Williams), 224
Sash, Window (Huey), 284
Saw Gunner (Wolf), 116
Sawing Machine (De Witt), 1
Sawing Machine (Fitts & Sharp), 28
SCIENTIFIC AMERICAN OFFICES, 257
Screw Cutter (Everts), 41
Seat, Carriage (Potter), 192
Seed Planter (Jones), 4
Seed Planter (Morehouse), 20
Seed Planter (Drake), 324
Seed Planter (Lyons), 288
Seeding Machine (Keller & Fox), 76
Sewing Machine (Wilcox & Gibbs), 165
Sewing Machine (Burnet & Broderick), 249
Shafts for Vehicles (Hoffmeier), 45
Shingle Machine (Ereman), 372
Shingle Machine (Vates), 322
Shovel (Sabbaten), 129
Sleigh Runner Attachment (St. John), 136
Slitting Machine (Hildreth & Bailey), 212

Smut Machine (Lautz & Russell), 176
Smut Machine (Lester), 200
Smut Machine (Woodward), 248
Smut Machine (Tobin), 239
Spinning Machine (Pittman), 236
Spinning Flyer (Sawtell), 252
Stave Jointer (Halderman), 217
Steamer (Winans), 65
Stick, Compositing (Calhoun), 220
Sool, Music (Leach), 41
Stone Gatherer (Bishop), 57
Stove, Cooking, for Ships (Beardsley), 160
Straw-cutter and Masticator (Sinclair), 124
Switch, Railroad (Dodge), 140

Table, Extension (Bader), 153
Threshing Machine (Harvey & Becker), 12
Trace Buckle (Smith), 316
Trap, Roach (Shell), 68
Trap, Fly (Smith), 345
Trap, Fly (Clough & Burrell), 348

Valve Cock (Macdonald), 64
Valve, Governor (McCray), 144
Valve, Steam-engine (Michener), 28
Valve, Steam-engine (Stewart), 73
Valve, Steam-engine (Wickes), 192
Vises (Morris & Coltart), 72

Washing Machine (Price), 36
Washing Machine (Allen), 56
Washing Machine (Jordan), 136
Wheel, Paddle (Orcutt), 184
Wheel, Wind (Fagan), 20
Wessel, Wind (Butterfield), 228
Windmill (Ruggles), 64
Windmill (Whitman), 276
Wrench and Screw-driver (McKenzie), 196

Miscellany.

Agricultural Chemical Science 59
Alloys, Hardness of 145
Aluminium Becoming Cheap 253
Aluminium, Extracting the Metal 265
Amalgam New, 72
Animal Curiosities 97
Asphalt, Composition Roofing 245
Axle Boxes of Locomotives 283

Bagasse Fuel 238
Balloons, Invention of 115
Balloons, Fire-extinguishing 302
Barometer, Aneroid 230
Bells, The 245
Belting, Experiments with 216
Belting, Testing 285
Bird-stuffing, Art of 318
Black Lead, Substitute for 220
Blackening Receipt 59
Blood, How to Stop 30
Boilers, Constructing 118
Boilers, Strength of 124
Boilers, Saving Fuel and Heat in 125
Boiler Explosions 145
Boilers, Preventive for Incrustations 55
Bottle for Prevention of Poisoning 343
Bridge, Suspension Lumber 188
Brick-drying, Tunnels 83
Bricks, Poor Kind 225
Bronchitis, Cure for 20
Buoy, Record 88
Butter, Preserving 168, 336

Cables, Submarine 125
Camphor Ice 167
Candles, Tallow 52
Candles, Improvement in 117
Car Seats and Sleeping Couches 12
Car Brakes and Starters 119
Cars, Speed of Railroad 135
Cars, Heating Railroad 196
Castings, Steel 97
Castor Oil, Palatable 71
Cement for Broken China 20
Cements and Paints, Applying Sill-cates to 177
Chalk Drawings, Fixing 224
Chess-playing, Wonders of 62
Cider, New Kind 172
Clay and its Uses 85
Cloth, Waterproof Glazed 265
Coal Gas 94
Coal Oils, Are they Explosive 101
Coal Oil, Young's Patent 186, 213, 221, 235
Cockroaches, How to Get Rid of 63
Coke, Desulphurizing 230
Colors, Murexide 325
Coloring Matter, New 81
Concrete Buildings and Roofing 201
Concrete Floors 217
Concrete Houses 268
Combe, Geo. Death of 21
Compasses, Ship's 40

Commissioner of Patent's Speech 162
Cran & Motion 285
Crystal Palace, Burning of 45
Curculio, Remedies Against 329

Days, Long and Short 291
Denists, American in Europe 159
Deer Skins, Tanning 73
Domestic Recipe 129
Door Plates, How to Clean Silver 25
Dryer, Atmospheric 354
Dye, New Scarlet 240
Dyeing Operations 88

Eggs, Pickled 291
Electric Illumination 4
Electric Light, Cost of 44
Electric Conductors, Science of 243
Electricity in Surgical Operations 84
Electrotyping, Improvements in 4
Electuary, Castor Oil 9

Elements, Observations on the Con-
nections of 267, 273
Ellsworth, H. T. Death of 145
Ellsworth, H. L. Will of 153
Enamelling Wood 16
Enamelling Hollow Ware 318
Endosmose 153
Engines, Trial of Steam Fire 148
Engines, Steam Fire 285
Engines, Steam, Inventor of 326
Engraved Copper Plates, Covering
with Copper 146
Explosions, Electricity and Steam
Boilers 301

Fabrics, To Waterproof 240, 268
Fair of the American Institute 37
Farm Lands, Draining 301
Farming Memoranda 268
Feather, To Dye a Bright Scarlet 280
Files, How they are Made 22
Filter for Cisterns 145
Fire on Ships, Prevention of 269
Fires on Land and Sea, How to Sup-
press Them 45
Fire-arms, Improvement in 312
Flax, Treatment of 221
Floor Covering 243
Flowers, Artificial 75
Frames, To Re-gild 179
Franklin, Homage to 214
Fruit, Preservation of 27
Fuel for Locomotives 217

Garments, Fire-proof 20
Gas Light, Prevention of 333
Girders, Iron 62, 70, 78, 83, 94, 110, 172,
178, 196
Glass, Grinding and Polishing 63
Glass, Soluble 70, 110, 138
Glass, Printing on 129, 144
Glass of Venice 230
Glycerine, To Clean 75
Gold, Powder and Liquid 91
Grain Insects, Destroying 27
Grape Vine Disease 32
Grease, Balls to Remove 185
Gulf Stream 14
Guns, Casting Heavy 60
Gun, Electric, 334
Gun Barrels, Browning 75, 183, 222,
340
Gunpowder, Iron 308
Gutta-percha, Substitute for 324
Gutta-percha, Defects of 70

Hair Dyes, 342
Hair Lotion, 46
Hair Wash for Dandruff 146
Halos and Mock Suns 281
Hams, Curing 43, 63
Hammer, Steam, 75
Hares, To Keep White and Soft, 56
Hands, Chapped Cure for 172
Hoops for Cotton Bales, 318
Hoosic Tunnel, 195
Hopper, How to Construct a 5 Bushel
38
Horses, Lockjaw in 8
Horses' Feet, Salt for 132
Horse Power of Steam-Engines, How
to Calculate, 95
Houses, Decorations for 229
Humboldt, Baron, Death of 317
Hydro-Carbon 241
Hydrophobia, Cure for 301

Ice Cream Receipts 320
Ice Houses 59
India-rubber, Patent 151
India-rubber, Deiseion 196
Ink, Marking for Linen 47
Ink, Solid 100
Ink, How to Make, 331, 243
Iron, Hardening 46
Iron, How to Tin 39
Iron, Enamelling 91
Iron, Inflammable 334
Iron and Steel, Improvements in 128
Iron and Steel, Polishing, Bluing
and Annealing, 157
Inventions, Selling 35
Ivory, Artificial 112

Jewels, Artificial 63

Kaleidoscope Toy, 340
Kerosene, Phosgene and Camphene
207

Lace, To Cover with Copper 59
Lardner, Dr., Death of 324
Leather Wooden Shoe 322
Light, Hill's New 109
Light, Artificial, 126
Lightning, A Advice About 294
Lithography, 121
Locomotives in Egypt 184
Locomotives, Firing of 352
Lock Factory (Hobbs) 212
Lord's Prayer, Engraving of 79
Lowell and its Cotton Manufactures
117

Machinery and Labor, 229
Mad Stone, 19, 69
Madder, Treating, 144
Magnetism, Something About 115
Mahogany for Ship-building 244
Marble, How to Clean 63, 137
Marbles, The Nineveh 285
Masters and Apprentices 5
Match Composition 49
Matches, Chemical 44
Matches, Friction, Inventor of 326
Metal, A New White 25
Metal, Hardening 133
Metal, Shooting Stars, 54
Meteorology, 169, 177, 185
Micro-Photography 308
Milk, Report on 250
Milk, Swill 253
Molds, New Material for 20, 102
Mortar, How to Make it Impervious
to Wet 305
Motive Agent, New 341
Mosquito Bites, Cure for 17

Od Force, The 297
Oil, Cocoa 213
Oil, Coal (Young's Patent) 186, 213,
221, 233
Oil for Machinery 93
Oils, Fragrant and Scented 49
Oils, Tar 118
Ointment, Professor Death of 309
Optical Illusion 30
Ores, Iron and Sulphur 265
Oyster Opener 111
Ozone, What it is 331

Paddle and Screw (Illustrated) 83, 96,
99, 112, 120, 132, 140
Paper, Asthma 49
Paper Materials 63
Parchment, Vegetable 237
Parchment Size 302
Pass the Pepper 99
Patent Office, New Appointments in
13
Patent Office Building 54
Patent Office, History of 263
Patent Law Changes in France 117
Patent Laws 151
Patent Law Question 73
Patent Laws, Canadian 270, 334
Patent Suit (Winans) 161
Patent Suit (Burden) 325
Patents Attachable 71
Patents, Committee on 125
Patents, Commissioner's Report on
205
Patents, Infringement on 253
Patents, Commissioner of (Bishop)
301, 312
Patents that Expire in 1859, List of
257, 267
Patents, Extension of 259, 292, 324,
333
Patents and Patent Law Cases 260
Patented Machines, Using 35
Peach Trees 241, 302
Pease, Edw., Death of 13
Perfume, Making 294
Photographs, Waterproof Transpar-
ent 52
Photographic Process 91
Photographs on Glass 132
Photographic Agents 167
Photographs on Wood 259
Photographic Engraving 213
Phosphorene 334
Pickled Beet Root, Spiced Vinegar,
&c. 56
Plaster Casts, To Improve 39
Platinum 70
Plants in Rooms, 339
Plows, Steam Trial of 104
Plows, Steam Premium for 286
Plowing by Steam 54, 338
Podocarpus 113
Potato Rot 14, 85
Projectile, New 236
Propellers, Gun Boat 237
Pulley, Expanding 129
Postmaster-General, Tribute of Res-
pect to 237

Railroad Materials 60
Railroads in the United States 151
Railroad Street 325
Reaping Machines, Notes on 78

Reaper, Extension (McCormick) 160,
193, 206
Road Lead, Substitute for 283
Rifles, Enfield, 324
Ringworm, Cure for 111
Robertson, W. H., Death of 341
Rule Machine 76

Salt as a Fertilizer 94
Saws, Power to Drive 128
Saws, Balancing 169, 204
Saw-mills without Balance Wheels
370
Scarlatina and Measles 81
Scalds, To Cure 115
Scent, Twin Rose 55
Science and Scientific Men 101
SCIENTIFIC AMERICAN OFFICES 257
Science of Familiar Things 296
Scrofula, Cure for 91
Sea Sickness, Cure for 44
Sewing Machine Controversy 13, 69
Sewing Machine Inventors 61
Sewing Machine Patent Case 124, 161
Sewing Machine Stitch Claims (Grov-
er & Baker) 154
Sewing Machine Decision 297
Sewing Machine Patent in England
(Howe) 333
Shafts, Wood Bearings for 138
Sheet-Iron, Russia 173
Ship "General Admiral," Launch of
30
Ship "General Admiral," Trial Trip
317
Ships of War 170
Ship Building, Novel Experiments 97
Silk, How to Gild 264
Silicate for Wood 243
Silver, Extracting from Copper Ores
67

Skates, Queen Victoria's 169
Stains, Mahogany, Rosewood, &c. 75,
129
Stains, To Remove 118
Steam Propulsion (Crank and Paddle
Wheel) 29
Steam on Canals 69 104
Steam, Elastic Force of 129
Steam Superheated and Cylinder
Jackets 133
Steam Jackets, Benefit of 309
Steamship "Austria," Loss of 37
Steamship (Winans) 65, 102, 109, 137,
162, 170
Steamships, Duty of 243
Steel, Tempering 37
Steel, Indian 38
Steel, American 61, 317
Steel, How to Blue 214
Steel Wire 221
Steel, Science of Making 228
Steel Grindings, Utilizing 305
Steel Tools, Tempering 310
Stone, Preservation of 77
Stone Cracker 116
Soap 146
Soap Powder for Shaving 41
Sugar Cane, Cutting 305
Sulphur, Combination of 153

Tea Cup, History of 246, 254
Teeth, Extracting by Electricity 118
Teeth, Advice About 304
Tables, Ancient 341
Telegraph Celebration 5
Telegraph Cables, Submarine 14, 240
Telegraph, Atlantic Origin of 21
Telegraph Conductors 40, 54
Telegraph, Retardation of Signals
Through Atlantic 94
Telegraph, New 176
Telegraph, Revised 232
Telegraphs, Science of Ocean 13
Telegraph, The 185
The Salt, if you Please 21
Thermometer Recording 69
Timber, Seasoning and Preserving
154
Timber, Time to Cut 175, 219
Timber, Graphite for 243
Timber, Cutting Fence 285
Tools, Preventing from Bending 164
Tomatoes, 305
Trade Marks at Law 316
Trees, Manuring 313
Trees, Barkening and Renovating, 303
Turnip Fly, To Destroy 167

Varnish, Black Japan 46
Varnish, Copal 46
Varnish, Crystal 46
Varnish, Lac 44
Varnish, Oil 46
Velvet, To Raise the Pile on 115
Ventilating Waterproof Cloth 141
Vinegar, Test for 135
Volcanoes and their Actions 30

Water Pipes, Wooden 41
Water, Odoriferous 49
Wax Poisons 76
Weaving by Machinery 38
Weights and Measures 229
Weight, Verifying by Measure 287
Wells, Ice 299
Whitewash Receipts 204, 311
Wine, Currant 37
Wine, Preserving 76
Wood, Artificial 363
Wood, How to Color 246

Patent Claims.

A

Acids, Fatty 43, 174
Adding Machines 35, 74, 274, 276, 284
Air Blowing Apparatus 218
Alarm, Burglars 26, 53, 82, 191, 198, 227, 232, 233

B

Bag Machine, Pasting Apparatus for 107
Bags, Carpet 275
Bags, Mail 293, 306 (2)
Bags, Mail, Fastener for 190
Lax Fastener 323

C

Cables, Submarine Telegraph 243, 250
Cable, Submarine Telegraph, Laying 35 (2)
Cables, Submarine Telegraph, Paying-out Apparatus 2
Cables, Submarine Telegraph, Shackle for 193

D

Daguerreotype Cases for Monuments 190
Dental Operations, Application of Electricity in 53, 90, 190, 222
Derrick, Floating and Revolving 183
Desk and Chair 153
Desk, Writing 260

Books, Shaping Backs of 346
Boots and Shoes, Stretching 2
Boots and Shoes, Soling 10, 26
Boots and Shoes, trimming soles of 90
Boot-blacking Apparatus 166
Boot Jacks 142, 174, 175, 191, 210
Boot Trees 266
Boring Machine 134, 174, 331
Bottles, Nursery 19, 159
Bottles for Holding Mercury 53, 143
Bottles, Molds for 90
Bottles, Securing Corks in 330
Bottles, Screw Neck 106
Bottles, for Castors 198
Bottle Stopper 24
Bottle Stopper, Fastening 234
Box, Fruit 10
Boxes, Portable 50
Boxes, Journal 11
Boxes for Carriage Wheels 50
Boxes, Car Axle 74, 75
Brackets 191
Brackets Machine 91
Brakes, Car 75, 114, 122 (2), 143, 234, 282, 283, 290, 306
Brakes, Wagon 26, 150 (2), 175, 331
Brakes, Hemp 18, 42, 75, 185, 166, 174, 306, 331
Brakes, Head 123
Brake Head for R. R. Cars 283
Bread and Cracker Machine 34
Bread, raising dough for 42
Breakwater 338
Breast Pipes 90
Breast Pins, Fastening for 167
Breast Pads and Perspiration Shields 314
Brick Machines 11, 26, 66 (2), 174, 227, 242 (2), 252, 275, 282, 306, 339
Brick Molds 93, 218
Bricks, Enamel Composition for 328
Bricks, Fire 51
Bricks, Finishing 38
Bricks, Turning or Edging 191
Bricks, Manufacture of 315
Bridges, 3, 174, 291
Bridges, Truss 98
Bridges, Connecting Braces of 315
Bridles for Kicking Horses 66
Bridles 306
Bristles, Cleaning 250
Brooches and Ear Rings 210
Brooms 330
Brooms, Splint 323
Brushes, 135
Brushes, Manufacture of 11
Brushes, Fountain 210
Brushes, Stencil 314
Buckles 134, 323
Buckles, Harness 135
Buckets, Self-dumping 191
Buckets, Hanging Wall 234
Buggies, Joint Bodied 274
Building Materials, (composition) 51
Bullet Machine 11, 13, 122, 109
Bung Cutter 91, 332
Bung Valve 190
Burial Cases 232, 299
Burners, Gas 13, 27, 43, 50, 143, 158, 159, 199, 235, 239
Burners, Spirit Gas 389
Burners, Vapor 63, 115, 143, 151, 182, 275, 323
Burners, Lamp 114 (2)
Burnisher for Lathes 143
Burnishing Machine 267
Burring Machine 143, 333
Butter Machine 114, 232
Butter Worker 10, 338

Chairs, Recumbent 2, 98, 175
Chairs, Rocking 150, 323
Chairs, Reclining for R. R. Cars 252
Chairs, R. R. 11, 74, 75, 163 (2), 167, 174, 182, 274, 282, 283, 330, 338
Chairs, R. R. Coupling for 251
Chairs, Rolling R. R. 3
Chairs, Rail Splicing 267
Chairs, Sofas, etc. (Design) 346
Chair Bottoms 142, 234
Chair and Lounge 174
Chamfers, Cutting on Wood 107
Chamfering Tool for Soles of Boots and Shoes 50
Checks, Baggage 42
Cheese, Making 191
Chimneys 226
Chimneys, Increasing Draft of 158
Chimney Caps 66, 93, 322, 335
Chisel, Mortising 190
Churns 3, 18, 25, 35, 66, 82, 90 (2), 107, 190, 198, 199, 218, 226, 227, 250, 274, 307 (2), 322, 330 (3)
Churn, 346
Cigar Wrappers 26, 43
Clamp, Joiner's 330
Clamp, Paper 243
Clasp, Paper 243
Clasps, Belt 166
Clay, Molding 10
Clay, Tempering 339
Clay, Working 18
Cleaver, Metal 133
Clip for Carriage Thills 346
Clock, Alarm 230, 346
Clock, Crusher 251
Closets, Water 10, 50, 153, 242
Cloth, Elastic 123
Cloth, Furling in the Piece 67
Clothes Dryer 35 (2), 322
Clothes Fastener 226
Clothes Frames 135, 175, 182, 199, 251, 266, 275, 306
Clothes Horse 143
Clothes Rack 210
Clothes Pins, Slotting 142
Clothes Sprinkler 166
Clothes Wringer 266, 276
Clover Pickers 133
Coal Breaker 306
Coal Dust, Burning 90
Cocks, Filter 74
Cocks, Gage 106, 219
Cocks, Steam 3
Cocks, Stop 283, 290
Cocks, Valve 2, 13
Cocks, Water Basin 227, 275, 307
Cook, Stop 346
Coffee Pots 43, 150, 174, 183, 190, 210, 275, 283, 307, 311
Coffee Roasters 3, 10, 58, 167, 274, 276, 299, 314
Coffin, 261
Coffin, Metallic 115, 275, 346
Collars, Shirt 133
Collars and Cuffs 290
Collisions, Preventing on R. R. 234
Comb Machine 150
Comb Teeth, Cutting 339
Condensers, Steam 191
Condensers, Surface 322
Conveyors for Removing Earth 153
Cooking Range and Heater 34
Cooking by Steam 323
Coolers, Beer 314, 322
Coolers, Milk 166
Coolers, Water 275
Coolers, Water Metallic Lining for 236
Coolers, Water for Steam-Engines 232
Copying Apparatus 10
Cordage Machines 331
Corks for Molding Plastic Substances 14
Cork Cutter 74, 193
Cork Machine 307
Cork, Composition, Water-proof 114
Corking Bottles 211
Corn Eradicator 51
Corn Picker 143
Corn, Planting 3, 26, 35, 106, 123, 166, 167, 219, 234, 250 (3), 266 (4), 207
Corrugating Metal Plates 275, 282, 290
Corsets and Bustles 142, 151
Cotton, Combing 67
Cotton Gins 2, 26, 43, 51, 151, 232, 299, 346
Cotton Gins, Feeder for 107
Coupling, Car 18 (2), 50, 67, 166, 226, 325, 342, 351, 287, 282, 283, 290, 322, 325, 346 (2)
Coupling, Gas 133
Coupling, Hose 106, 210, 250, 328
Covers, Condensing 266
Covers for Sad-iron Heaters 2
Covers for Traveling Trunks 274
Covers, Wall 152
Cover Lifts for Stoves 275
Cracker Machine 34, 182, 193, 331
Cradle 90
Cradle, Folding 323
Cradle, Rocking 339
Cradle, Wagon 227
Cradle for Dry Docks 123
Crane, Dredging 52
Cresets for Heating Barrels 251
Crimpers, Boot 107, 307
Crossing for R. R. Tracks 213
Cruet, Pepper 134
Cruet, Vinegar 315
Crushers, Corn 59
Cultivators, 3, 10, 35, 43, 50 (2), 51, 59, 107, 123, 142, 150, 151, 166, 190, 219, 226 (2), 251 (3), 266 (3), 314, 315 (2), 322, 323, 330 (2), 339, 346 (2)
Cultivators, Cotton 150, 166
Cultivator Teeth 193
Cup, D. 307
Curtain Fixtures 106, 210
Curtain Rack 323
Cushion, Elastic 67
Cut-Off for Steam-Engines 3, 267
Cut-Off, Variable 274, 322 (2), 232, 293, 314
Cutlery, Attaching Handles to 151, 182, 227, 293
Cutters, Bread 274
Cutters, Cheese 267, 339
Cutters, Corn and Cob 299
Cutters, Grass 26
Cutters, Gas Pipe 290
Cutters for Turning Hubs 106
Cutters, Meat 10, 18, 210, 224, 330
Cutters, Vegetable 166, 210
Cylinders, Brush 26
Cylinders Wire Cloth, Frames for 50

Door Fastener 143, 334
Doors, Water-tight 266
Dough Rolling Machine 243
Dovetailing Machine 13, 198
Dovetail Moulds, Cutting 107
Dovetail Joint 274, 293
Draft Regulator for Steam-Engines 182
Draft Apparatus for Furnaces 123
Drawing Boards 2
Dredging Machine 34, 143
Drills 90
Drills, Rock 346
Drills, Rock 82
Drills, Metal 123, 315
Drills, Grain 274
Drill Stocks 241
Drop of Forging Metal 82
Drying Apparatus for Shoe Pegs and Grain 283
Drying Fibrous Substances 330
Dust 190
Dynamometers 135

Edge Keys for Boots 114
Egg Beater 232, 291, 293, 322
Eggs, Apparatus for Assorting 106
Electro-Magnetic Machines 321, 227
Electro-Magnetic Medical Apparatus 234
Electro-Magnetic Apparatus for setting Water-Engines in motion 169
Electrodes, Covering with Fibrous Material 191
Electrotype Molds, Coating 18
Electrotype Plates, Curved 293
Elevators, Hay 191
Elevator, Cut Hoisting Goods 330
Elliptograph 184, 191
Emery Wheels and Sticks 159, 314
Engines Air 107, 122, 267, 299
Engines, Applying Power to Cranes of 67
Engines, Fire 106
Engines, Locomotive 159
Engines, Marine 175
Engines, Oscillating 275
Engines, Paper Rag 174
Engines, Rotary 18, 133, 193, 215, 242, 266, 293, 306, 307, 346
Engines, Steam 67, 107, 199, 266, 267, 275, 290, 307 (2)
Engines, Steam Condensing 331
Engines, Steam Pumping 66
Envelope Machine 106, 182, 291
Epaulettes 275
Eraser and Pencil Sharpener 227
Escapement for Chronometers 59
Escapement for Time-keepers 10, 50, 122, 142, 150, 182
Evaporators 159, 167, 184, 227, 234, 314, 331
Excavators 122, 190, 233 (3), 314
Exhaust, Variable 133 (2), 314
Explorer, Submarine 58

F

Fabrics, Hydrofuge 159
Fabrics, Knitted 333
Fabrics, Medicated 134
Fans, Portable 134
Fans, Automatic 333
Fare Boxes for Omnibuses 3
Fats, Decomposing 175
Fatty Substances Hardening 159
Faucets 135, 242, 270, 282, 293
Faucets, Measuring 210, 219, 293
Feed Boxes, Automatic 90
Feed Rollers, Making 143
Fire Arms, Repeating Lock for 330
Fire Arms, Revolving 10, 18, 35 (2), 50, 52, 142, 150, 166, 175, 183, 191, 218, 233, 290, 293, 333
Fire Arms, Self Priming 234
Fire Arms, Tools for Manufacturing 306, 307
Fire Alarm 90, 153, 211
Fire Box, Locomotive 235
Fire Escape 266
Fire Plug 210
Fire and Ventilating Apparatus for ships 133
Fire, Extinguishing in Vessels 267
Fireman's Protector 227
Flax Caps 153
Flax, Scutching 175
Flesh, Preserving for Food 106
Floors, Fire Proof 193
Floor Cloths (Design) 270
Flour Bolt 51
Fluid, Burning 226, 227
Fluids, Raising and Forcing 132
Fluids, Compressing Elastic 193
Flux, for Soldering Iron 132
Fly Wheels for Rolling Mills 242
Folding Machine for Wool 254
Foot Power 315
Forceps for fastening Clasps on Skirts 122
Forging Machine 251, 257
Forms, Polygons 51
Forms, Turning and Cutting Irregular 3, 122, 226, 323
Frames, Preparing for Gilding 10
Frames, Oval 235, 315
Frames, Drawing for Fibrous Material 175
Frames, Metallic for Blinds 314
Frames, Cutting 275
Freezers, Ice Cream 234
Froze, R. R. 314
Fruits, Preserving 142
Fuel, Artificial 142, 210
Furnaces 166
Feed Rollers in Planing Machine 193, 324
Feet-warming Device 3
Felloes, Bending 2
Felted Fabrics, Obtaining Fibres from 276
Felted Fabrics, Disintegrating 276
Felted for Coats, Hats, etc. 107
Fences, Field 3, 19, 23, 54, 174 (2)
Fences, Cast Iron (Design) 43, 107
Fences, Metallic 30
Fences, Allowing for expansion of 11
Fences, Post for 107, 174, 219, 306
Fences, Supporting Panels of 199
Fence Posts, Attaching Caps to 346
Fencing, Manufacturing 314
Fertilizing Machine 150
Fertilizer, Distributing 107, 306
Fibrous Materials, Combing 293
File Cutter 123, 182, 276
File Handles 166
Files, Paper 134
Filling Water Tanks at R. R. Stations 19
Filters 243 (2)
Filtering Apparatus 133
Filterer and Purifier 314
Finger Rings, Extension 134, 211
Fire Arms 123, 346
Fire Arms, Adjustable Sight for 193
Fire Arms, Breech Loading 19, 51, 90, 134, 193, 234, 250, 267, 346 (2)
Fire Arms, Hammer for 338
Fire Arms, Magazine 234
Fire Arms, Primer for 166, 193, 306
Fire Arms, Repeating 193

Furnaces, Bagasse 82, 134
Furnaces, Hot Air 106, 199
Furnaces for Heating Buildings 43, 306
Furnaces for Evaporating Sugar Juice 222
Furnaces, Lime Burning 143
Furnaces for Smelting Iron 114, 191, 252
Furnaces, Steam Boiler 42, 106, 150, 282
Furnaces for Tempering Steel 58, 82
Furnaces, Fire Heating 232
Furnaces, Zinc 174
Furnaces and Pots for Glass 135
Furnaces and Stoves 339

Gage for Contents of Casks 53
Gage for Weatherboarding 315
Gage, Liquid 53
Gage, Steam and Water Alarm 122, 293, 207
Gage, Steam Pressure 3, 210, 226, 235, 267
Gage Taper 153
Gage, Water, for Steam Boilers 53, 123, 210
Gage, Pressure 346
Gaging Device for Handsaws 267
Garnets, Securing to Hooks 199
Gas Heating and Illuminating 123
Gas Illuminating 270
Gas Lighting by Electricity 193
Gas Purifying 114, 135
Gasometer 66
Gates 19, 42, 51, 98
Gates, Canal 107, 276
Gates, Farm 250
Gates, Opening and Closing 53 (2), 82, 114, 190, 226, 250, 283
Gates, R. R. 334
Gearing 93 (2)
Generators, Gas 67, 143, 270, 293
Generators, Steam 51, 122, 268, 275
Gears, Molds for Pressing 339
Glass, Ornamenting 66, 166
The Drying 339
Gong or Bell for Signals 323
Governor for Steam Engines 134, 213, 282, 290 (2)
Governor for Sugar Mills 233
Grate, Machine for Cutting 43
Grain Cleaners 43, 227, 276, 293
Grain Drills 50
Grain Discharging Attachment for Harvesters 66
Grain and Fruit Dryers 93, 166
Grain Fan and Corn Sheller 167
Grain Gatherer 167
Grain, Scouring and Hulling 219
Grain Weighers 191
Grain Bins 346
Grain Binders 346
Grates 275
Grates for Coal Stoves 10
Grates, Furnace 233
Grate Bars 93, 266, 338
Gridiron 250
Grinding Machine 82
Guard for Circular Saws 114
Guard Finger for Harvesters 19
Guides, Folding 42
Gun, Centrifugal 314
Gun, Self-priming 275
Gun Carriages, Quoins for 134
Gun Lock, Self-priming 274, 346
Gun Stocks, Coupling with Pistols 166

Hair Crimpers 293
Hair Restorative 218
Hame Fastening 90
Hammers, Making 151, 193
Halters for Horses 43
Hammers 53, 90
Hammers, Steam 18
Hammers, Forge 90
Hammers, P. O. Stamp 242
Hammers, Trip 153, 346
Hammer and Anvil 43
Hammer Head 53
Handles, Lifting 75
Handles for Spoons and Forks (Design) 299
Harness Attachment 218
Harness Breeching, Attaching to Wagon Thills 293
Harness, Creasing and Blacking 75
Harness Snaps 122
Harpoon 74
Harrows 10 (2), 19, 306, 322, 333
Harrows, Rotary 26 (2), 82, 150, 167, 182, 274, 275, 307, 333
Harvesters, Grass and Grain 2, 3 (4), 19, 15, 26 (2), 54, 42, 50, 51 (2), 53 (2), 75, 82, 90, 106, 107, 114 (2), 122, 134 (2), 150, 167 (2), 175, 182, 183, 190 (2), 193 (2), 199, 210, 211, 218 (4), 219, 235, 250 (2), 251 (3), 267, 274, 276 (3), 278, 282, 283 (4), 290, 291 (3), 292, 299 (2), 306, 307 (3), 315 (3), 322 (2), 323, 330, 338
Harvesters, Corn and Cane 53, 75, 114, 150, 153, 213, 226, 227 (2), 290, 323, 346
Harvesters, Cotton 226
Harvesters, Cutters for 10, 18, 143
Harvesters, Gathering and Discharging Apparatus for 134
Hat Body Machinery 3, 122
Hat Bodies, Forming 174
Hat Bodies, Hardening 314
Hat, Felt 306
Hat, Ventilating 314
Hat Rack (Design) 332
Hay Loading Machine 306
Hay Mangers 251
Hay Making Machine 346
Heat, Generating 75
Heating Apparatus 167, 174, 175, 213, 283
Heating Apparatus for Cemented Sole Shoes 18
Heating and Ventilating Buildings 93
Heating and Purifying Feed Water for Steam Boilers 234, 275, 322
Hearties for Working and Refining Iron 313
Heels for Boots and Shoes 123, 175, 234, 242, 331
Hides, Apparatus for Handling 211
Hides and Skins, Treatment of 193
Hinges 60, 67, 133, 291
Hinges, Blind 2, 107
Hinges, Gate 13, 74
Hinges, Latch 293
Hinges for Reflectors of Stereoscopes 250
Hinges, Strap-Cutting out 339
Hoes, Manufacturing 267
Hoisting and Dumping Apparatus 10, 150
Hoisting Machine 82
Hominy Machine 322
Hominy Mortar 167
Hook, Self-mousing 66
Hook, for Vest Chains 339
Hoops, Cutting Locks of 13
Hoops, Notching and Trimming 13
Hoops, Machine for Dressing 153
Hoop Machine 331
Hop Frames 250
Hop Liquor, Preparing for Brewers 124
Horse Collars 53, 153, 274 (2)
Horse Power 13, 90, 167, 174, 235, 291, 299

H

Horse Power Equalizer 198
Horse Power for Driving Saws 134
Horse Power Machines, Constructing 276, 323, 338
Horse Power, Shafting for Endless Chain 307
Horse Shoe 26, 210
Horse Shoe Machine 51, 166, 167, 182, 307
Horse Shoes, Sharpening Calks of 290
Horse Bracket 346
Hose, Cleaning 2
Hose, Engine 122
Hose, Leather, Water-proof 290
Hose Pipes, India-rubber 153, 190
Hose, Suction 230
Hose, Textile 3
Hubs and Axles Connecting 226
Hubs for Carriage Wheels 322
Hubs, Hewing out 227
Hub Borer 270
Huller, Turning Machine 10
Hullers, Clover 330
Hullers, Grain 346
Huskies, Corn 2, 18, 174, 191, 242, 315, 328
Hydrants 2, 59, 134, 193, 266, 283, 333
Hydro Carbon, Supplying with Oxygen 191

Ice, Hoisting and Storing 107
Ice, Planing and Shaving 315
Ice Pick 135, 307
Indicator, R. R. 10, 74
Indicator, Steam Pressure 11, 159
Indicator, Water 43, 314
India-Rubber Fabrics, Manufacturing 315, 327
India-Rubber Goods 114
India-Rubber, Hard 107
India-Rubber, Restoring Waste 107, 233, 291
India-Rubber, Treatment of 153, 226, 233, 290
India-Rubber, Vulcanizing 306
India-Rubber, Cutting into Threads 331, 346
Ink Bottle (Design) 159
Inkstands 3, 26, 142, 153, 327
Iron, Manufacture of 267
Iron, Moving at the Rolls 338
Iron, Preserving Surfaces of 93
Iron, Rolling 42, 251
Iron, Refining 315
Iron, Rolls for Planishing 53
Iron, Sheet Manufacture of 51, 53
Iron, Sheet, Roll for Making 43
Iron Columnna, Securing Sides of 153
Iron, Composition for Cementing 343
Irons, Smoothing 66, 306
Ironing Machine 11

Jacks, Lifting 2, 53, 294, 323, 330
Jewelry, Rolling Metal for 346
Joints, Gas Pipes 391
Joints, Making Tight 53
Joints for R. R. Tracks 10
Joints for T-Rails 13, 74
Journal Boxes of R. R. Cars 225, 232, 233, 299
Journals of Locomotives, Oiling 153, 234
Journals, Reducing the Friction of 99
Juices, Extracting and Assorting 234

Kettles, Oil 106
Key-Bolts for Attaching Carriages to Thills 211
Keyhole Stop 34
Keys for Strap Connections of Engines 333
Kid Skins, Dressing 323
Kilns, Lime 114
Knapsacks 274, 307
Kneading Machines 10
Knife, Apple-paring 43
Knife, Bread 322
Knife, Pruning 307
Knife, Sharpener 90, 191 (2)
Knives to Cut Paper Bags 43
Knives, Grinding and Polishing 50, 331
Knives, Shoe 239
Knitting Machines 3, 50, 82, 98, 175 (2), 293, 338

K

Labels for Trees 135
Lactical Instrument 82
Ladder, Fire Escape 123
Ladder, Fireman's 323
Ladder, Extension 135
Lamps 2, 26, 34, 35, 133, 142, 150, 159, 174 (2), 175, 191, 210, 213, 226, 266, 274, 324, 346
Lamp, Carcel 151
Lamps, Gas 151
Lamps, Gas 331
Lamps, Holders for 166
Lamps, Lighting by Electricity 51
Lamp Case for Locomotives 90
Lamp Lighters 227
Lanterns 13, 174, 234
Lanterns, Attaching to Caps 13
Lanterns, Attaching Lamps to 75
Lanterns, Signal 193, 199
Lard, Rendering 51
Lasts 151, 191, 193
Latch, Door 114, 330
Laths, Cutting and Sawing 42, 90, 150
Laths,aving from the Block 190
Laths, Metallic 275, 293
Lath Clutch 266
Lathes for Cutting Screws from Wire 59
Lathes for Finishing Dental Plates 158
Lathes for Turning Wood 82
Lathes for Turning Masts 142
Lathes for Turning Irregular Forms 207
Lathes, Machine 143
Lathes, Watchmaker's 250, 251
Lathes, Watchmaker's Chuck for 211
Lead, Bar Packing 210
Leather, Artificial 43, 266
Leather, Creasing and Blacking 331
Leather, Enamelled 307
Leather, Finishing 339
Leather, Machine for Splitting 93, 306
Leather, Stitching 191
Leaves of Music Books, Turning 167
Letter and Envelope Combined 234
Letters, Sealing 199
Leveling Instrument 134
Lever, Hand 330
Lever Power 314
" Lewis " for Attaching Tackle to Blocks of Stone 153
Life Berths for Vessels 114
Life Boats 250, 266, 275
Life Boats, Floats for 26
Life Boats, Matraass 11
Life Boats, Water Cask 293
Life Preservers 51
Lifting Apparatus 53
Lights, Ship's 234
Lightning Rods, Insulating and Supporting 67
Lightning Rods, Insulators for 106, 250
Lightning Rods, Securing 322
Limbs, Artificial 274, 283, 314

Lights, Ship's 234
Lightning Rods, Insulating and Supporting 67
Lightning Rods, Insulators for 106, 250
Lightning Rods, Securing 322
Limbs, Artificial 274, 283, 314

Lights, Ship's 234
Lightning Rods, Insulating and Supporting 67
Lightning Rods, Insulators for 106, 250
Lightning Rods, Securing 322
Limbs, Artificial 274, 283, 314

Lights, Ship's 234
Lightning Rods, Insulating and Supporting 67
Lightning Rods, Insulators for 106, 250
Lightning Rods, Securing 322
Limbs, Artificial 274, 283, 314

L

Lights, Ship's 234
Lightning Rods, Insulating and Supporting 67
Lightning Rods, Insulators for 106, 250
Lightning Rods, Securing 322
Limbs, Artificial 274, 283, 314

Lights, Ship's 234
Lightning Rods, Insulating and Supporting 67
Lightning Rods, Insulators for 106, 250
Lightning Rods, Securing 322
Limbs, Artificial 274, 283, 314

Lights, Ship's 234
Lightning Rods, Insulating and Supporting 67
Lightning Rods, Insulators for 106, 250
Lightning Rods, Securing 322
Limbs, Artificial 274, 283, 314

Lights, Ship's 234
Lightning Rods, Insulating and Supporting 67
Lightning Rods, Insulators for 106, 250
Lightning Rods, Securing 322
Limbs, Artificial 274, 283, 314

L

Liquors, Malt, Preserving 50
Locomotives for Propelling Plows, etc. 238
Locomotives, Magnetizing the Driving Wheels of 276
Locomotives, Attachment for 346
Lock Attachment 339
Locks 2, 26, 35, 75, 82, 98, 123, 142, 210, 218, 219, 222, 307, 315, 338
Locks, Alarm 11, 274
Locks, Bank 43, 51, 74
Locks, Cam for Throwing Bolts in 42
Locks, Door 18, 190
Locks, Gun 190
Lock and Key 74
Locks and Latches 234
Locks for Piano Fortes 299
Locks, Ring 166
Locks, Safe 90 (2)
Locks, Trunk 322
Locket (Design) 59
Logs, Rolling and Piling 3
Looms 10, 151, 346
Looms, Fringe 82
Looms, Harness, Filling Needles in 251
Looms for Weaving Skirt Fringe 2
Looms for Weaving Hair Cloth 51
Looms for Weaving Figured Fabrics 43
Looms, Power 90, 226
Looms, Picker Staff for 98
Looms, Shuttle Box for 143
Looms for Weaving Plaid 330
Loom Temples 338
Lounges 174
Lubricating Car Axles 42
Lubricating Composition 106
Lubricator 53, 282
Lumber, Seasoning 330

M

Machinery, Connecting and Disconnecting 330
Mallets, Construction of 250
Mangles 299
Manure, Artificial 158
Mashing Apparatus 219
Match Box 199
Match Safe 51
Match Splints, Making and Arranging in the Dipper 291
Matches, Friction Composition for 158
Matches, Making Water-proof 266
Mattresses 338
Mattresses, Elastic Material for 82
Measure, Grain 142
Measuring and Recording by the Tape 114
Measuring Machine for Cloth 331
Measurer, Fluid 253
Meal and Flour Making 182
Mechanical Movement 75
Melodion 90
Metal Bars, Machine for Cutting 26
Metals, Coating 51, 199
Meters, Dry Gas 43, 322, 331
Meters, Fluid 123
Meters, Gas 43
Meters, Water 219, 290
Mill Drivers 331
Mills, Burr Stone 183
Mills, Cider 66, 293
Mills, Coffee 242
Mills, Cooling and Feeding Material to 252
Mills, Corn and Cob 199, 282, 315, 331
Mills, Fanning 183
Mills, Grinding 191, 150 (2), 159, 182 (2), 219, 250, 253, 283, 291, 298, 315, 330, 331, 339
Mills, Grinding Surfaces for 158
Mills, Hominy 135
Mills, Saw 107, 114
Mills, Spice 123
Mills, Sugar 34, 234 (2), 290
Mills, Sugar Cane 2, 174, 219
Millstones, Balancing 134
Millstones, Bush for 322
Millstones, Dressing 183, 267
Millstones, Dressing 346
Millstones, Hanging 2
Millstones, Tram-staff for Facing 218
Mincer, Meat 234
Mining Machine, Coal 67
Miter Box 135
Molds for Casting 250
Molds for Forming Artificial Teeth 265
Molds for Steel Castings 282
Molding Machine 323
Moldings, Burnishing 338
Moldings, Cutting Curved 299
Moldings, Enameling 235
Moldings, Operating Rotary Cutters for 307
Moldings, Laying Metal Leaf on 306
Moldings, Preparing for Picture Frames 251
Money Boxes for Stages 333
Monuments, Sepulchral 327
Mop and Brush 53
Mop Handles 315
Mop Head 199
Mortising Machine 275
Mortising Machine, Reversing the Chisel in 51
Motion, Converting 199 (2), 266, 282, 330
Motion, Transmitting 74, 142, 330
Motors, Power, 218, 242
Motors, Water 67
Mowing Machines 34, 51, 159, 211, 307
Musical Instruments 342
Musical Instruments, Reed 275
Musical Instruments, Wind 98
Musquito Bar 331

N

Nail Heads, Plating 107
Nail Machine 114
Nails, Wrought 53
Needles, Sewing 93
Needles for Knitting Machines 26
Needle Case and Index 315
Needle Threader 198
Needle Wrappers 283
Nut Blanks 34
Nut Cracker 314, 330
Nut Machine 53, 59, 138
Nut and Washer Machine 199
Nuts, Preventing Unscrewing 26

O

Oakum, Tarring 166
Odometer 191, 242
Oil Cans for Lubricating 274
Oil Cloths, Printing 338
Oils, Coal 53, 17, 191
Oils, Petroleum 142
Ordnance, Chamber for 288
Ordnance, Loading 284
Ore Crusher 315
Organs 123, 299
Ovens, Bakers' 53, 182 (2), 183, 322
Ovens for Cooling Castings 232
Ovens, Heating by Steam 34

P

Padlock 75, 90
Pails 199
Pails, Scrubbing 182
Paint Composition 53
Fans, Bread (Design) 3
Fans, Egg 237

Pans, Milk 251
Paper, Apparatus for Wetting 32
Paper, Apparatus for Coloring 27
Paper, Drying 339
Paper Feeder for Printing Presses 27, 59, 82
Paper-Folding Machine 191 (2), 266
Paperhangings, Turning the Edges of 43, 199
Paper, Marking and Ornamenting 242
Paper, Making from Reeds 215
Paper, Making from Wood, 43, 135
Papers, Machine for Addressing 16, 98, 218, 290, 346
Paper, Manufacturing 346
Paper and Paper Pulp 306
Paper, Rendering Incombustible 82
Patterns for Cog Wheels 266
Pavements, Iron 55, 142, 183, 191, 199, 226, 227
Pavements, Sidewalk 11
Pavements, Street 166
Peach Cutting and Stoning Apparatus 234
Pearl Jewelry, Connecting 290
Peat for Composting 266
Peg Machine 90, 153, 266, 267, 275
Pegging Jacks 134
Pegging Machines 27, 250, 267, 291 (6)
Pen, Fountain 63, 82
Penholder, 53, 195, 250, 291
Pen-Wiper and Paper Weight 227
Pencil Case 267
Pencil Sharpener 42
Pencils, Composition for 330
Pendulum for Clocks 142
Pessaries 211
Peatles for Cleaning Clothes 143
Photographs, Instrument for Enlarging 242
Photographs on Wood 190
Pianofortes 219, 298, 322, 346
Pianofortes, Pedal Attachment for 75
Pianofortes, Arrangement of Keyboard 314
Piano Legs 338
Pick Handle 250
Piers for Breakwaters 274
Pile Driver 250, 293
Pin-Sticking Machine 19
Pins, Shield 74
Pipes, Clay 17, 323
Pipes, Composition for Lining 107
Pipes, Drain 283
Pipes, Waterproof Cement 323
Pipes, Metallic 323
Pipes, Coiling Metal 82
Piston Packing 55, 43, 266
Pistol, Burglars' Alarm 339
Pitcher, Ice 53, 227, 266
Plane, Bench 306
Plane, Hand 307
Plane Irons, Securing to Stocks 2
Planes, Stock, Bench 283
Planes, Securing Bits in 339
Planer for Irregular Surfaces 42
Planing Machine 43
Planing Machine, Rotary 234, 299
Planing Machine, Adjusting Knives in 290
Planing Machine, Feed Device for 315
Planing Machine, Hand 315
Planing Cutter, Rotary 51
Plant Protector 306
Pliers 19
Plows 10, 34, 35, 58 (2), 74 (2), 82, 123, 155, 166, 174, 210, 218, 219, 227, 250, 274, 276, 306 (4), 307, 346, 351, 359
Plows, Grass 181
Plows, Hillside 307
Plows, Mole 18, 107, 151, 198, 242, 250, 266, 275, 283
Plows, Snow 263
Plows, Steam 42, 190
Plows, Securing the Clevis to 346
Plow Beams 219
Plow Handles, Forming, 323
Plow Press and Drill 26
Plugs for Blasting Rocks 314
Plugs for Making Bottles, 276
Polishing Metals 182
Polishing Wheel 274
Portfolio 267
Posts for Clothes' Lines 53
Pots, Tea and Coffee 122
Potato Riggers, 10, 165, 218, 251, 307
Potato Planter 815
Power, Applying 275
Power, Accumulating and Transmitting 220
Power, Mechanical 34
Press, Cam 135
Press, Hand Printing 75 (2)
Press, Hydraulic 174, 233
Press for Embossing Vintets, &c. 74
Press, Lithographic Printing 151
Press, Printing and Numbering 10
Press, Printing Automatic Grippes for 276
Press, Punching and Stamping 298
Press, Seal 210
Press, Sugar Cane 346
Press, Self-Acting 331
Presses, Cheese 66, 191, 242, 250
Presses, Copying 67, 151
Presses, Cotton 2, 68, 107, 183, 226, 227
Presses, Printing 18, 19, 82 (2), 91, 106, 142, 159, 251, 276, 282, 299, 306, 339
Presses, Tobacco 82, 298, 330
Pressing Machine for Tailors 331
Printing Curved Surfaces 234
Printing Process 198
Prisons, Constructing 338
Propellers 3, 10, 42, 58, 82, 91, 107, 114, 134, 142 (2), 151, 174, 210, 218 (2), 227, 253, 266, 275, 315, 322
Propellers, Constructing with Steam-Engines 67
Propellers for Lifeboats 134
Propeller and Steering Apparatus 142
Propeller, Hand 346
Projectile for Fire-arms 274
Projectile for Killing Whales 346
Protractor 250
Pulley, Friction 323
Pumps (26 (2), 51, 106 (2), 107, 175, 182, 210, 218 (2), 242, 266 (4), 267, 274, 276, 282, 298, 307, 314, 315)
Pumps, Cattle 169, 167, 190
Pumps, Centrifugal 50
Pumps, Chain 338
Pumps, Cylinders and Pistons for 51
Pump Gearing 330
Pumps, Operating 67
Pumps, Rotary 2, 26, 85, 123, 174, 226, 290
Pump Boxes 290, 306
Punch and Awl Combined 175
Punching and Cutting Iron 190
Punching Metal 820
Punching Railroad Bars 199
Pyrites, Treating 158

Rack for Holding Match Cards 51
Radiators, Steam 122
Raft, Life 106
Rails, Railroad 67, 91, 184, 234, 290
Rails, Railroad Connecting and Supporting 290
Rails, Splice of 182, 210

Railroads, Constructing of 291
Railroads, Street 306
Railing, Iron 50, 142
Rakes, Hay 42, 43 (2), 338
Rakes, Horse 2, 114 (2), 150, 151, 166, 218 (2), 219, 226, 306, 322, 346
Raking Machine 290
Raking Attachment for Harvesters 10, 29, 58, 74, 123, 307
Raking and Binding Attachment for Harvesters 19
Ramrods, Wormer for 234
Ranges, (Design) 123
Ranges, Cooking 150, 267, 282
Reaping Machines 135
Reaping Machines, Binder for 10, 90
Refrigerators 67, 74, 98, 190, 191, 226, 235, 293, 322
Registers, Billiard 190
Register for Sheets of Paper 226, 227
Register and Folder for Sheets of Paper 226
Register, Omnibus 339, 346
Register for Railroad Cars 290
Register, Time 306
Register, Time, Operating Index of 330
Registers, Ventilating 166
Regulators, Gas 26, 50, 274, 330, 331
Regulators, Steam Boiler 234
Regulators for Time-keepers 291
Regulator, Steam Pressure 346
Resins, Preparation of 158
Retorts, Coal Oil 158, 182, 199, 250, 251, 283, 299, 330 (3)
Retorts, Gas 142, 158, 252, 314
Retorts Gas, Joints for 270
Rice Cleaners 134
Rice Machine 67
Rice, Polishing 266
Riddles, Wire 66
Roasters 206
Rocking Horse 199
Rollers for Calico Printing 43
Roller for Pressing Water from Cloth 153
Rollers, Electro-plated 275
Rollers, Field 330
Rivet and Bullet Machine 190
Roofs, Cementing 211
Roofs, Metallic 199
Roofing Machine 35
Roofing, Attaching Iron 275
Roofing Compositions and Cements 26, 67, 134, 158, 218, 284, 299, 315, 322
Rope Machine 267 (2), 290
Rope, Machine for Opening 338
Rubber, Machine for Lead Pencils 267
Rudders for Vessels 75
Rudders, Supporting the Backs of 314
Rules, Printing 167
Ruling Machine 10, 226

Saccharine Juice, Defecating and Clarifying 199
Saddle Trees, 98, 183
Saddles, Elastic 150, 251
Safes, Ash and Garbage 106
" Burglar-proof 158
" Iron 10
Sails of Vessels 323
Sails Reefing 167, 198, 266, 290, 323, 346
Sandals 266
Sash, Attaching Cord to 282
" Balance 323
" Cord Fastener 283
" Elevator 198
" Fastener 2, 74, 98, 142
" Hanging Window 134
" Supporter 183, 315
Sausage Machine 74
Sausage Stuffer 153, 218, 251
Saw, Circular 282, 322, 323, 338
Saw Gunner, 45, 74
Saw Gates, Preventing Vibration of 190
Saw Joints, 283
Saw-Mills 22
Saw Set 114 (2), 252
Saw Shaft, Rocker Boxes for 250
Saw 346
Saw Teeth, Cutting and Setting 175, 242
Saws, Attaching the Spreader to 42
Saws, Circular, Defecting Plates for 42
Saws, Setting Circular 158
Saws, Grinding and Polishing, 182, 183, 234, 330
Saws, Hanging 174
Saws, Reciprocating 183, 210, 235
Sawing Machines 18, 58, 159, 190, 218, 250, 330 (2)
Sawing Machine, Feed for 211
Sawing Machine, Kelly 98
Sawing Machine, Stone 35, 159
Sawing Beveled Surfaces, 314, 338
Sawing Winding Forms 174
Scales, Grain 159
Scales, Platform 114, 182, 283, 323 (2)
Scales, Weighing, 314, 322
Saws, 106, 134
Scrapers, 42, 226, 290
Scrapers, Dirt 275
Scrapers, Foot 251
Screens (Design) 3
Screens, Coal 323
Screw Blanks, Shaving the Heads of 183
Screw Cutters 19, 35, 143, 323
Screw Dies, 330
Screw Heads, Dressing. 151
Screw Machines 276 (4)
Screw Plate 210
Screws, Burning Threads on 199
Screws, Die for Cutting, 74, 191
Screws, Die for Cutting, 322
Screws, Nicks Heads of 374
Screws, Tap for Cutting 74
Screws, Threading 274
Screws, Wood 98, 251, 346
Scrubbing Machine 66
Scythe Blades 10
Seythe Snaths, 242
Seals, Metallic 314
Sealing Preserve Jars 90, 151
Seaming Machines, Metal 50, 283
Seats, Carriage 122
Seats, Carriage Attaching Rails to 283
Seats, Folding 283
Seats for Churches, Schools, &c., 223
Seed Mills, 2, 35, 43, 191, 307
Seed Planters 3, 10, 90, 106, 114, 123, 150, 166, 218 (2), 227, 251, 306, 307, 323 (2), 330
Seed Planters, Cotton 2, 226, 274
Seed, Saving Hay 90
Seeding Machines 2 (5), 3 (2), 11, 34, 51, 53 (2), 74 (2), 75, 106 (3), 107, 134 (2), 142, 156, 166, 17, 218, 226, 227, 250, 251 (2), 266, 270, 274, 275, 290, 291, 306, 314 (2), 315, 331, 346 (5)

Seeding Machines, Arms of 190
Separators, Fiber 51
Separators for Smit Machines 332
Separators, Grain 2, 36, 74, 154, 210, 226, 274, 306, 307, 315 (5)
Separators, Grain Shoe for 322
Separators, Stone 306
Sewing Machines, Clamp for 327
Sewing Machines, Closet for 143
Sewing Machines, Hemming Guides for 2, 218, 322

Sewing Machines 2 (3), 10, 11 (3), 19 (3), 27, 42 (4), 43 (3), 50 (3), 51 (2), 55, 67, 75, 82 (3), 98 (3), 106 (2), 107, 114 (6), 122 (3), 150, 151, 174, 188, 198, 199, 226, 235, 274, 290, 291, 298, 314 (4), 315 (2), 322, 330, 338, 346
Sewing Machines, (Design) 339, 346
Sewing Machines, Oiling the Thread 375
Sewing Machines, Regulating Tension of 3
Shade Supporter for Lamps 123
Shades, Lamp 298
Shafts, Carriage 306
Shafts, Conventible 10
Shafting, Hanger and Boxes for 35
Shears, 2 (2), 56, 143, 321
Shears for Cutting Metal 82
Shearing Machine, Sheep 226
Sheep, Apparatus for Holding 106
Shell for Ordnance 51
Shellers, Corn 34, 107, 150, 151, 159, 191, 251, 267, 282 (2), 291
Shields for Boots and Shoes 323
Shields, Geographic 53, 106
Shingle Machines 18, 55, 50, 90, 158, 183, 218, 242, 282, 293
Shingle Machines, Clamping the Bolt in 322
Shingle Machines, Operating the Knife in 251
Shingles 134
Shingles, Joining 338
Shingles, Manufacturing from the Log 11, 267
Shingles, Sawing from the Bolt 338
Shingles, Sawing 306
Shipbuilding 90
Shirred Goods, Manufacturing 82
Shirt Bosom Folders 82
Shirts, Drafting, 134
Shirt Studs, Fastening for 2, 242, 274, 275
Shoe Horns 174
Shot, Manufacture of 237
Snot and Shell, Rotating 266
Shovels, Fire (Design), 51
Shovels, Grain 306
Shovels, Sifting 150
Shutter Fasteners, 106
Shutter Operators 2, 274
Shuttles for Weaving Cloth 299
Shuttles, Weavers' 107
Sifters, Coal or Ash 10, 226
Signals, Firemens' 299
Signals, Fog 42
Signals, Pyrotechnic 267, 270
Signals, Transmitting Magnetic on Railroads, 43
Sink, Water-tight 330
Sinks, Charging Apparatus, 267
Sizing for Colored Papers, 183
Skates, 191, 198 (2), 219, 275, 282, 298
Skate Fastening 250 (2), 298 (2), 306
Skate Irons 27
Skirt Hoops 100
Skirts, Hoop 18, 58 (2) 82; 107, 142, 190, 298
Skirts, Hoop Buckles for 135
Skirts, Hoop Clasp for 3
Skirts, Hoop Fastening for 26
Skirts, Hoop Slides for 43, 50, 134
Skirting Material 18
Skirting Apparatus for Water in Steam Boilers 242
Slats, Blind 158
Slates, Preparing and Mounting 250
Sleds, Running Gear of 346
Sparator, Ore 345
Sign-Boards, Fastening Letters on 346
Slicer, Meat 307
Slaughtering Apparatus 219
Smoke-stacks of Locomotives, Removing Sparks from 2
Smoke-stacks of Locomotive Engine Houses 298
Smoking Tube 74
Smut Machine 26, 135, 150, 219, 274, 322, 323
Smut Mills 174, 251
Soap, 314
Soap, Manufacture of 123
Soap, Machine for Cutting 123
Soap, Grain 237
Soda Water Apparatus 158, 174
Soda Frame 166
Soles of Boots and Shoes, Cutting out 190; 267, 306, 323 (2)
Soles of Boots and Shoes, Chamfering 275
Soles of Boots and Shoes, Channeling and Edging 323
Soles of Boots and Shoes, India-rubber 266
Soles of Boots and Shoes, Molding 90
Soles of Boots and Shoes, Smoothing 282
Soles of Boots and Shoes, Water-proof 323
Soldering Machine 74
Sorting Machine for Silk, &c. 26
Sounds, Ascertaining the direction of in Fogs 283
Sounding Apparatus, Deep Sea 190, 283
Spading Machine 51, 150, 190, 290
Spark Arrester 42, 190, 275
Spark Extinction 234
Spectacles 150
Spectacle Frames 158
Speed, Register for Railroad Trains, 90
Speed, Mechanism for Varying 323
Spermatoc Rings, 182
Spindles for Thrustle Spinning 114
Spinning Flyers 299
Spinning Frames, Ring Traveler, 323
Spinning Machines, Drawing Heads for 314
Spinning Machines, Top Rollers for 2
Spinning Mule Carriage Tops, Cleaning, 338
Spinning Flyers 346
Spindles, Extension 66
Spindles, Surgical 314
Splitter, Wood 175, 283
Spoke Machine 60, 150, 166
Spoke Shave 191, 306
Spokes, Tenoning 191, 219
Spoon Machine 90
Springs, Air 207
Springs, Motive Power 234
Springs, Binding and Setting 210
Springs, Car, 74, 122, 198, 199, 290, 330
Springs, Carriage 216
Springs, Door, 142, 182 (2), 190, 298
Springs, India-rubber, 35
Springs for Supporting Window Sash 231
Springs, Tempering Car 34
Springs, Tempering Steel 219
Springs, Truss 167
Springs, Upholstery 35, 331
Square, Framing 158
Square, Joiners' Adjusting 59
Stacking Agricultural Products 210
Stair Pad 51
Stalk-Cutter 276
Stalls for Horses on Ships 210
Stand for embroidering or Sewing 35, 210
Stand, Hat and Cane (Design) 91
Starch, Apparatus 182
Starch, Manufacture of 143

Statuette of "Clay" (Design) 82
Stave Cutter 58, 114
Stave Joints 58, 210, 267
Stave Machine, Rotary 234
Stave Machine, Chopping Block for 250
Stave Machine, Drawing Sawdust from 284
Staves, Riving from the Block 190, 226, 315
Steam, Superheating 307
Steamers, Ocean 67 (3), 267
Steel, Manufacturing 74, 167, 190, 219
Steels for Sharpening Knives 307
Steering Apparatus 142, 226, 234, 235, 270, 290, 339
Stoves (Design) 346
Stove Plates (Design) 346 (2)
Stove, Railroad 346
Stencils 132
Stereoscopes 234
Stereoscopic Apparatus 174, 183, 211, 266, 339
Stereoscopic Cases 219, 274
Stereoscopic Plates 210
Stirrups, 50, 274
Stitcher, Single thread 307
Stone-Breaking Machine 98
Stone-Cutter 158
Stone-Dressing Machine 51
Stone-Holding Machine 19
Stop, Window 67
Stopper for Glass Bottles 58
Stoves 74, 82, 114, 122 (2), 134, 175, 142, 175, 182, 190, 193, 250, 251 (3), 275 (3), 283 (2), 290 (2), 307 (3), 323, 330, 331, 339
Stoves (Design) 3, 11 (2), 27, 43, 75, 82, 91, 99, 115, 123, 151 (2), 159, 167, 183, 243 (2), 276, 284, 291, 299, 315, 339
Stoves, Coal 10 (2), 151, 166
Stoves, Cooking 18, 50, 67, 98, 114, 167, 226, 227, 243, 298, 307, 314, 315
Stoves, Flues of 11
Stoves for Railroad Cars 242
Stoves, Franklin 150
Stoves, Gas 122, 242
Stoves, Plates for Boiler Holes of 331
Stoves, Steam 143
Stove Covers 242, 274
Stove Covers, Molding 210
Stove Lining 10, 43
Stove Pipes 322
Stove Plates (Design) 270 (2), 370
Stove Polish Mixer and Scraper 290
Straw-Carriers 98
Straw-Cutters 74 (2), 90, 107, 123, 210, 211, 306 (3), 314 (2), 323, 330
Straps, Attaching to Boot Legs 270
Straps, Laminator 175
Stump Extractor, 142, 153, 191, 266, 282
Sugar Cane, Stripping and Cutting 323
Sugar, Manufacturing 51, 158
Sugar, Cleaning 43
Sugar Crushing and Mixing 330
Sulphur, Precipitated 245
Sulphurets, Treating 27
Sun Shades 2
Surfaces, Varnishing and Protecting 190
Surveyor's Instruments 159, 190
Swages, Dental 242
Sweepers, Stair 122
Sweeping Machines, Street 50, 167
Switch, Railroad 35, 43, 66, 190, 306, 315
Switching Cars from one Track to Another 339
Swords, Hanging 74
Syringing Apparatus 166

Tables, Bread-making 235
Tables, Dining 66
Tables, Extension 114, 227, 266
Tables, Folding 123
Tables, Invalid 218
Tables, Cast-Metal (Design) 67
Tackle 27
Tank Steam Water 43
Tanning 266
Tanning Apparatus 43, 330
Tanning Composition 122
Tanning Process 50, 174, 250, 338
Tapering Machine 274
Tarring Rope Yarns 98
Tea-pots 24
Tea Set (Design) 291
Teeth, Artificial Pins for Securing 330
Telegraph, Magnetic 35, 151, 175
Telegraph Instruments 90
Telegraph Insulators 18
Telegraph, Railway 159
Telegraph Messages, Sending and Receiving at Once 2
Tempering and Molding Mastic Material 283
Tenoning Machine 18
Thermometer for Steam Boilers 283
Thills, Attaching to Vehicles 166
Threads, Gaging 274
Threshing Machines 74, 98, 174, 276, 323
Threshing Machine 51, 150, 190, 290
Spark Arrester 42, 190, 275
Spark Extinction 234
Spectacles 150
Spectacle Frames 158
Speed, Register for Railroad Trains, 90
Speed, Mechanism for Varying 323
Spermatoc Rings, 182
Spindles for Thrustle Spinning 114
Spinning Flyers 299
Spinning Frames, Ring Traveler, 323
Spinning Machines, Drawing Heads for 314
Spinning Machines, Top Rollers for 2
Spinning Mule Carriage Tops, Cleaning, 338
Spinning Flyers 346
Spindles, Extension 66
Spindles, Surgical 314
Splitter, Wood 175, 283
Spoke Machine 60, 150, 166
Spoke Shave 191, 306
Spokes, Tenoning 191, 219
Spoon Machine 90
Springs, Air 207
Springs, Motive Power 234
Springs, Binding and Setting 210
Springs, Car, 74, 122, 198, 199, 290, 330
Springs, Carriage 216
Springs, Door, 142, 182 (2), 190, 298
Springs, India-rubber, 35
Springs for Supporting Window Sash 231
Springs, Tempering Car 34
Springs, Tempering Steel 219
Springs, Truss 167
Springs, Upholstery 35, 331
Square, Framing 158
Square, Joiners' Adjusting 59
Stacking Agricultural Products 210
Stair Pad 51
Stalk-Cutter 276
Stalls for Horses on Ships 210
Stand for embroidering or Sewing 35, 210
Stand, Hat and Cane (Design) 91
Starch, Apparatus 182
Starch, Manufacture of 143

T

Tables, Bread-making 235
Tables, Dining 66
Tables, Extension 114, 227, 266
Tables, Folding 123
Tables, Invalid 218
Tables, Cast-Metal (Design) 67
Tackle 27
Tank Steam Water 43
Tanning 266
Tanning Apparatus 43, 330
Tanning Composition 122
Tanning Process 50, 174, 250, 338
Tapering Machine 274
Tarring Rope Yarns 98
Tea-pots 24
Tea Set (Design) 291
Teeth, Artificial Pins for Securing 330
Telegraph, Magnetic 35, 151, 175
Telegraph Instruments 90
Telegraph Insulators 18
Telegraph, Railway 159
Telegraph Messages, Sending and Receiving at Once 2
Tempering and Molding Mastic Material 283
Tenoning Machine 18
Thermometer for Steam Boilers 283
Thills, Attaching to Vehicles 166
Threads, Gaging 274
Threshing Machines 74, 98, 174, 276, 323
Threshing Machine 51, 150, 190, 290
Spark Arrester 42, 190, 275
Spark Extinction 234
Spectacles 150
Spectacle Frames 158
Speed, Register for Railroad Trains, 90
Speed, Mechanism for Varying 323
Spermatoc Rings, 182
Spindles for Thrustle Spinning 114
Spinning Flyers 299
Spinning Frames, Ring Traveler, 323
Spinning Machines, Drawing Heads for 314
Spinning Machines, Top Rollers for 2
Spinning Mule Carriage Tops, Cleaning, 338
Spinning Flyers 346
Spindles, Extension 66
Spindles, Surgical 314
Splitter, Wood 175, 283
Spoke Machine 60, 150, 166
Spoke Shave 191, 306
Spokes, Tenoning 191, 219
Spoon Machine 90
Springs, Air 207
Springs, Motive Power 234
Springs, Binding and Setting 210
Springs, Car, 74, 122, 198, 199, 290, 330
Springs, Carriage 216
Springs, Door, 142, 182 (2), 190, 298
Springs, India-rubber, 35
Springs for Supporting Window Sash 231
Springs, Tempering Car 34
Springs, Tempering Steel 219
Springs, Truss 167
Springs, Upholstery 35, 331
Square, Framing 158
Square, Joiners' Adjusting 59
Stacking Agricultural Products 210
Stair Pad 51
Stalk-Cutter 276
Stalls for Horses on Ships 210
Stand for embroidering or Sewing 35, 210
Stand, Hat and Cane (Design) 91
Starch, Apparatus 182
Starch, Manufacture of 143

Trunks, Life-Preserving 143
Truss for Roofs, Bridges, &c. 339
Truss Pads 26, 50
Trusses, Belt 175
Trusses, Hernial 274, 306
Tubes, Speaking, for Ships 234
Tuning Key Board 346
Turning Taper in Wood 135
Tuyere, Blacksmiths' 82, 08, 314
Twist Regulator in Thrustle Frames 191
Twisting Fibrous Substances 175
Type Case 267
Type Galleys 142
Type Script (Design) 91

Umbrellas 2, 58, 98, 267
Umbrella Rings 150
Umbrella Frames 82, 166, 167
Umbrella Fastenings 198

Yoke Ring Attachments for Ox Carts 267
Yokes for Ship's Rudder Posts 226
Yokes, Ox 3, 166, 322

Valves, Butterfly 306
Valves, Combination 19
Valves, Cut-Off 42, 58, 106, 134, (2), 193
Valve Gear 219, 298
Valve Gear for Oscillating Engines 123, 174, 267
Valve, Governor 10, 123, 226
Valve and Governor Combined 18
Valve for Gas Meters 114, 315
Valves, Operating 10
Valves, Pressure and Vacuum 19
Valves of Pumping Engines 150
Valves, Rotary 234
Valves, Slide 182
Valves, Steam-Engine 42, 106, (2), 107, 159, 123, (3), 166, 174, 191, 266, 275, 283, 291, 299
Valves, Steam Trap 11, 106
Valves, Tubular Elastic 270
Vapor Apparatus, Hydro-Carbon 330
Vaults, Light 120, 132
Vault Light, Frames for 34
Vegetable Cutter and Coffee Mill 90
Vehicles, Attaching Horses to 266
Vehicles, Attaching Thills to 274
Vehicles, Guide Attachment for 274
Veneer Cutter 26
Ventilator, Car 198, 307
Ventilator, Pump 57
Ventilators 346
Ventilating Corn Houses 346
Ventilating Houses 197
Ventilating Window for Cars 167
Vessels for Holding Liquids 91
Vessels, Construction of 218, 275
Vessels, Hulls of 75
Vessels, Center Board for 90, 213
Vessels, Raising 19
Vessels, Launch